USER'S MANUAL

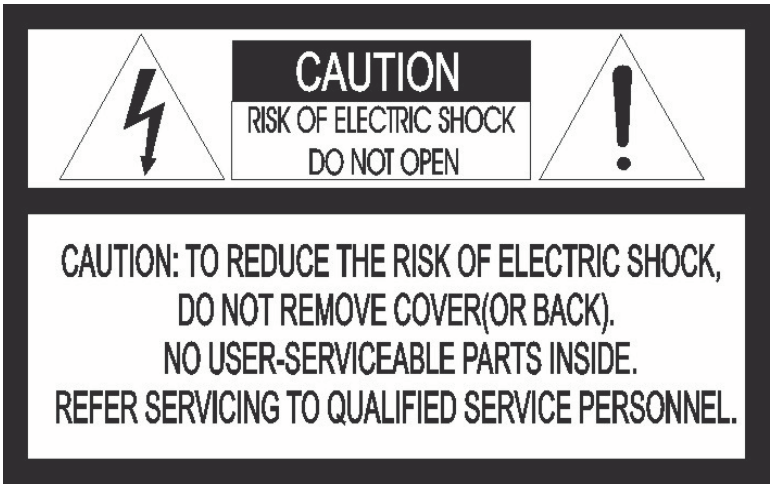
MINITRAX3IP NETWORK DOME CAMERA

Please read this manual thoroughly before use and keep it handy for future reference.

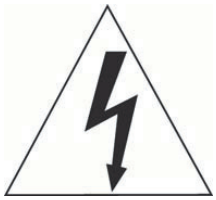
WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

CAUTION


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER(OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

EXPLANATION OF GRAPHICAL SYMBOLS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

FCC COMPLIANCE STATEMENT

FCC INFORMATION: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

CE COMPLIANCE STATEMENT

WARNING
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been moisture, does not operate normally, or has been dropped.
15. ***CAUTION – THESE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU QRE QUALIFIED TO DO SO.***
16. ***Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.***

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Chapter 1 — Introduction

1.1 Features

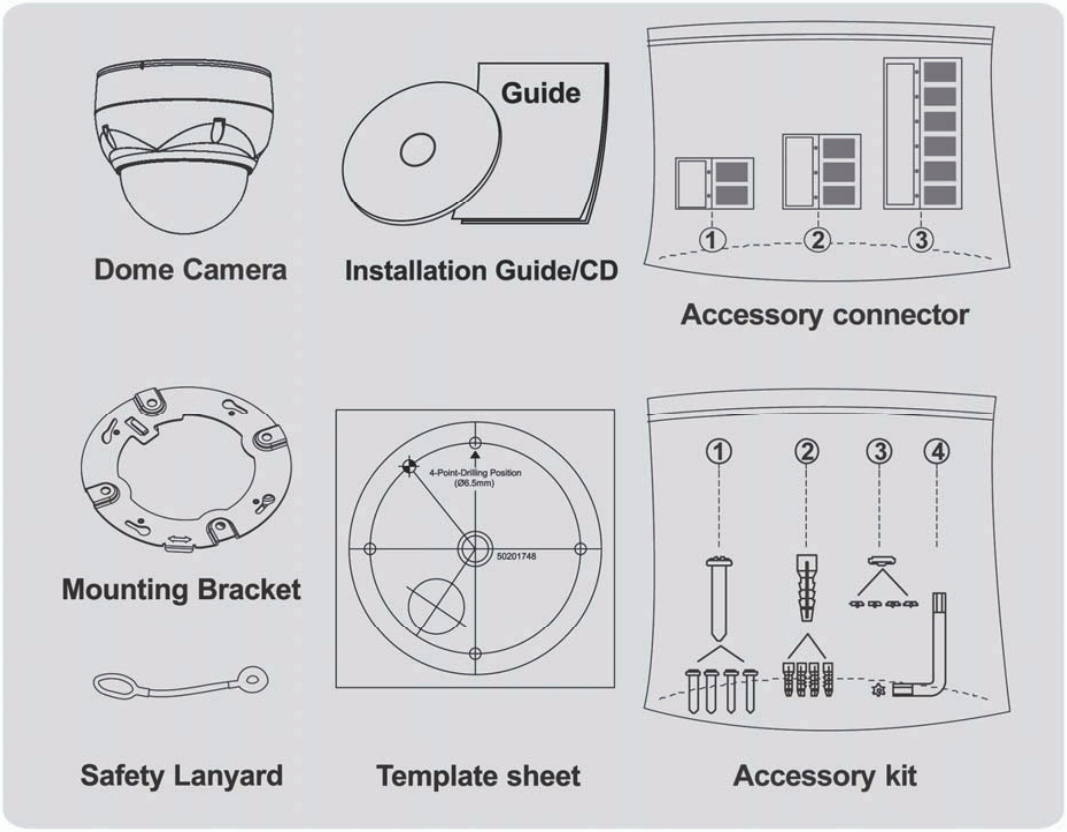
- Built-in optical power zoom camera with True Night Shot function
- Dual video streams simultaneously at full frame rate in all resolutions up to D1 (720x480 in NTSC, 720x576 in PAL) using Motion JPEG and H.264 (or MPEG-4)
- Intelligent capabilities such as enhanced video motion detection
  The encoder's external inputs and outputs can be connected to devices such as sensors and relays, enabling the system to react to alarms and activate lights or open/close doors.
- ONVIF: This is a global interface standard that makes it easier for end users, integrators, consultants, and manufacturers to take advantage of the possibilities offered by network video technology. ONVIF enables interoperability between different vendor products, increased flexibility, reduced cost, and future-proof systems.
- Supports two-way audio
- Logs all user access, and lists currently connected users. Also, full frame rate video can be provided over HTTPS.
- Interface Protocol: TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, QoS, FTP, uPnP, RTP, RTSP, RTCP, DHCP, ARP
- 120 Preset positions with the individual camera AE setup
- 4 Tours consist of Presets, Patterns, Auto Scans and other Tours can be programmed with over 150 functions and preset locations. While moving, each Preset scan can be watched in smooth **Vector Scan** mode.
- 4 Auto Scans with the normal, the vector, and the **random** mode and the endless Auto-Pan with 13 speed steps
- 4 Patterns (up to 200 second) and 4 Privacy Zones
- 8 Area Titles
- 1 Alarm input / 1 Alarm output
- Variable speed from 0.1°/sec to 380°/sec
  Three Variable speed (SLOW, NORMAL, TURBO)
  Turbo speed is 380°/sec with Ctrl key pressed.
- Pan/Tilt speed is inversely proportional to the zoom ratio with the option.
- Maximum speed is 380°/sec when Preset command.
- Auto Calibration from 0.1° to 6° (Tilt range is 0° to 180°)
- Programmable user preferences (alarm, preset, title, etc.)
- 180° Digital Flip
- Up to 255 selectable camera addresses
- Multi-language Menu Display, Password Confirmation
- Function Run menu using DVR without function key (Pattern, Scan, …)
- Built-in RS-485 receiver driver
- 12VDC for Dome
- Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.

Chapter 2 — Installation and Configuration

2.1 Package Contents

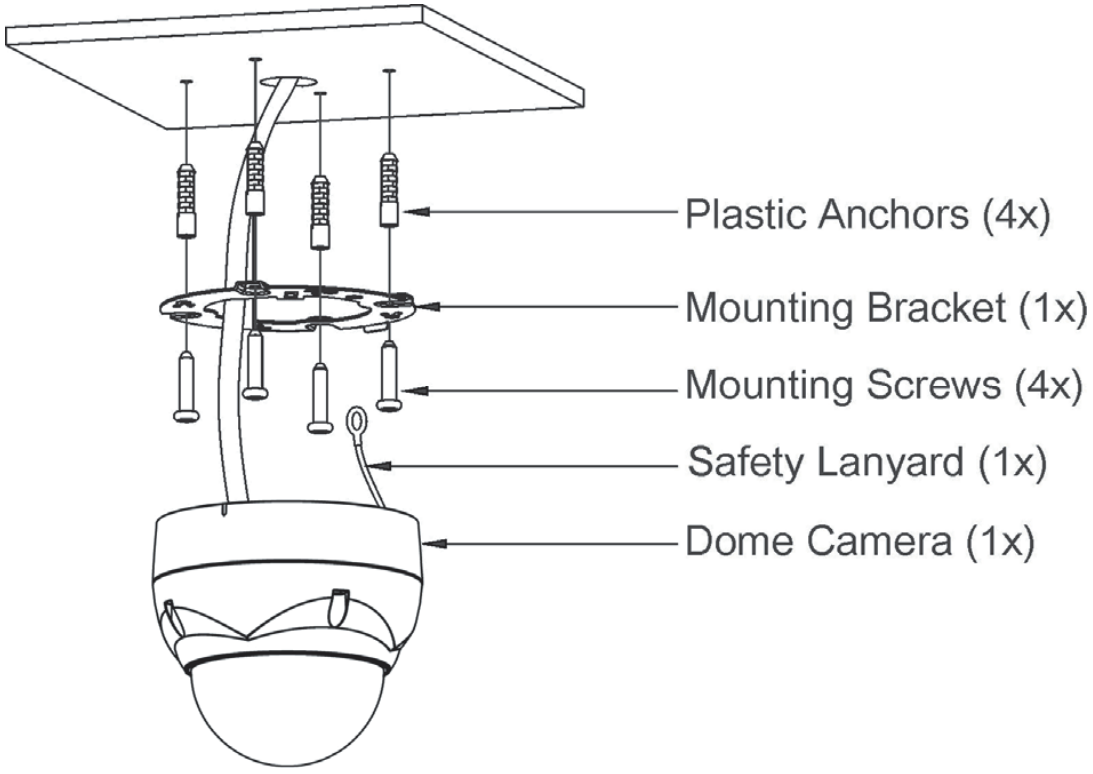
The dome camera is designed with a compact, small size, hard dome camera housing. The housing is constructed of aluminum, steel and plastic. The housing is designed to be mounted on a wall or a ceiling. The housing meets the Protection Classification IP66 standards for dust and moisture resistance.

- *** Dome Camera 1**
- *** Installation Guide/CD 1**
- *** Template Sheet 1**
- *** Mounting Bracket 1**
- *** Safety Lanyard 1**
- *** Accessory Kit 1**
  - 1) Mounting screws (PH6 x 35.0) ..... (4)
  - 2) Plastic anchors ..... (4)
  - 3) O-Rings ..... (4)
  - 4) Torx wrench ..... (1)
- *** Accessory Connector 1**
  - 1) 2-Pin Terminal Block ..... (1)
  - 2) 3-Pin Terminal Block ..... (1)
  - 3) 6-Pin Terminal Block ..... (1)



2.2 Installation

The dome camera is for use in surface or pendent mounting applications and the mounting member must be capable of supporting loads of up to 3.5lb (1.6kg). (Pendent mounting must use pendent mount accessory.)
The dome camera's mounting bracket should be attached to a structural object, such as hard wood, wall stud or ceiling rafter that supports the weight of the dome camera.



CAUTION: A silicone rubber sealant must be applied to seal the housing to secure waterproofing.

2.2.1 Locking Dome Camera

A. Make screw holes on the ceiling using the supplied mounting Template Sheet (Figure A).

B. Fix the Mounting Bracket to the ceiling using supplied Anchors (4x) and Mounting Screws (4x) (Figure B).

C. Hook up the Safety Lanyard to the Safety Lanyard Hook of the Mounting Bracket (Figure C).

D. Align the locking tab on the bracket and the locking slot on the base of the dome (Figure D).

E. Turn the dome to the counterclockwise about 10 degree to the locked position (Figure E).

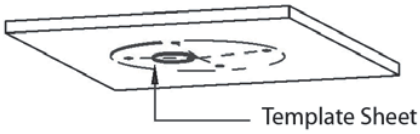


Figure A

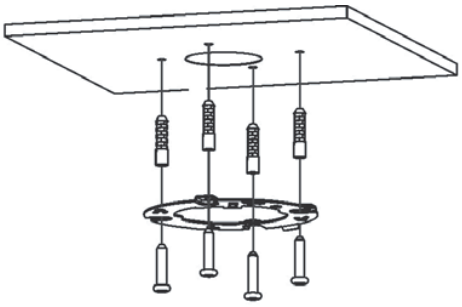


Figure B

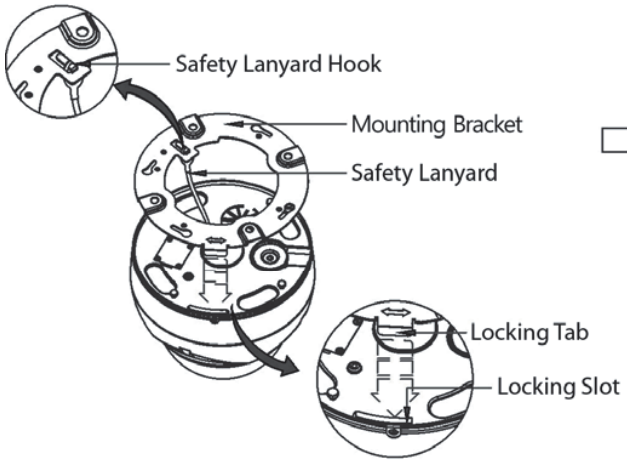


Figure C

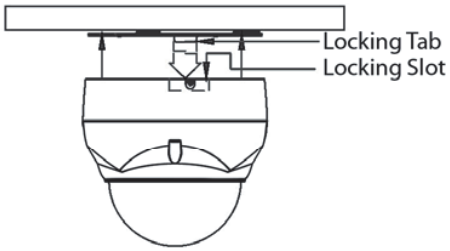


Figure D

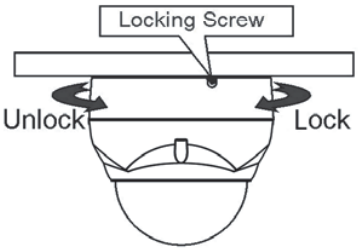


Figure E

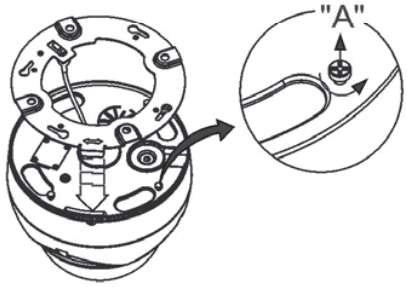
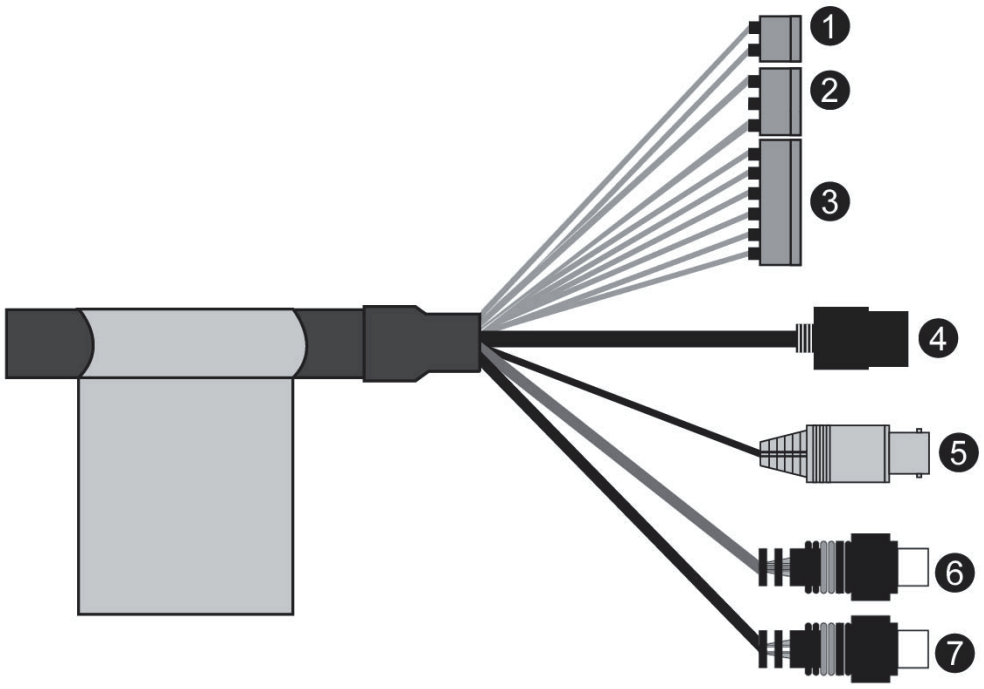


Figure F

CAUTION: Before installing mounting bracket to surface pre-adjust the four mounting screws "A" on the base of the dome camera to best match the mounting bracket locked position. Unscrew the locking screw on the side of the dome's base and fit the tab of the mounting bracket into the locking slot. Screws "A" should not be too tight or too loose when the dome is in the locked position. After setting the proper positions of screws "A" remove the mounting bracket and install it to the proper surface. If it is too difficult to lock the dome in position after the mounting bracket has been installed readjust the screws "A" by unscrewing them a small amount and try to install dome camera again.

2.3 Basic Configuration of Dome Camera System



No.	Wire Color	Description
1	Red: 12VDC+ White: 12VDC-	Main Power: 2-Pin terminal
2	Pink, Brown	Heater Power(Option): 3-Pin terminal
3	Black: GND Gray: Alarm Input Yellow: GND Black&White: Alarm Output Green: RS485+ Blue: RS485-	Alarm Input/Output, RS485: 6-Pin terminal
4	Black	Ethernet: RJ45 Modular Jack
5	Yellow	Video Composite Output: BNC Jack
6	Red	Audio line output: RCA Jack
7	White	Audio line input: RCA Jack

The dome camera must be installed by qualified service personnel in accordance with all local and federal electrical and building codes.

2.4 Setting Dome Camera Address (ID)

To prevent damage, each dome camera must have a unique address (ID).

When installing multiple dome cameras using a multiplexer, it is suggested that the dome camera address match the multiplexer port number.

The factory default setting is 1.

Refer to '3.13 Dome Communication' section for detailed information.

2.5 Connections

• Connecting to the RJ-45

Connect a standard RJ-45 cable to the network port of the dome camera. Generally a cross-over cable is used for directly connection to PC, while a direct cable is used for connection to a hub.

• Connecting Alarms

AI (Alarm Input)

You can use external devices to signal the dome camera to react on events. Mechanical or electrical switches can be wired to the AI (Alarm Input) and G (Ground) connectors.

Please see "4.5.4 Event > 1) Event-In > ② Alarm In" for configuring alarm input.

G (Ground)

NOTE: All the connectors marked G or GND are common.

Connect the ground side of the alarm input and/or alarm output to the G (Ground) connector.

AO (Alarm Output)

The dome camera can activate external devices such as buzzers or lights. Connect the device to the AO (Alarm Output) and G (Ground) connectors.

Please see "4.5.4 Event > 2) Event-Out > ④ Alarm Out" for configuring alarm output.

• Connecting to the RS485

The dome camera can be controlled remotely by an external device or control system, such as a control keyboard, using RS485 half-duplex serial communications signals.

• Connecting Video Output connector

Connect the video output (BNC) connector to the monitor or video input.

• Connecting the Power

Connect power of 12VDC 1A for the dome camera.

When using a 12VDC adapter, connect the positive(+) pole to the '+' position and the negative(-) pole to the '-' position.

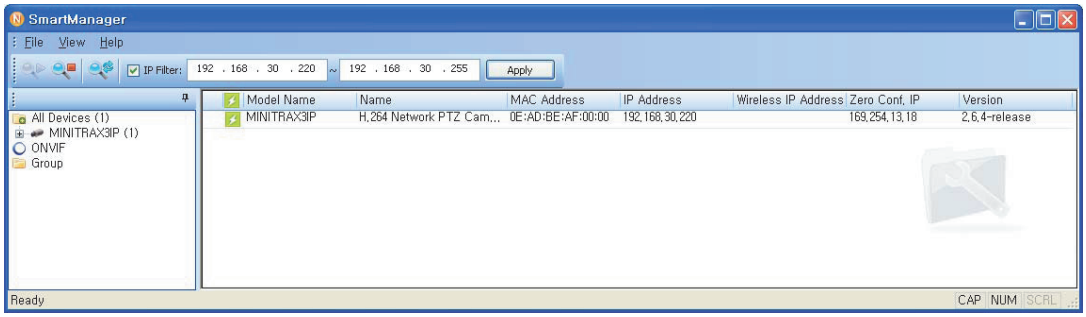
Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.

2.6 IP Assignment

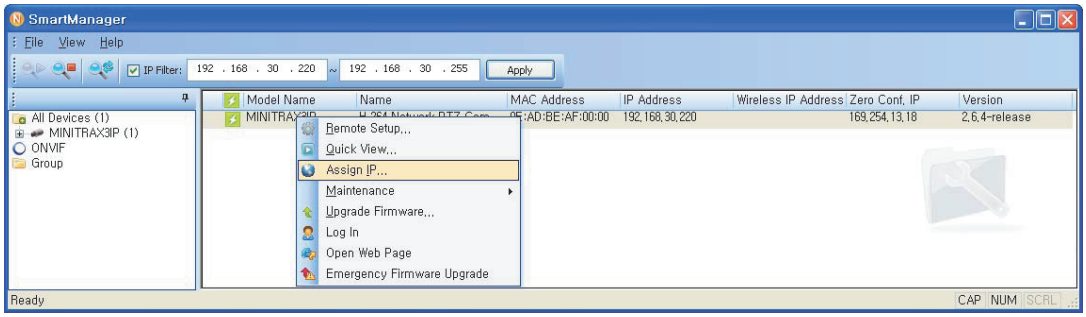
When the dome camera, encoder or decoder is first connected to the network it has no IP address. So, it is necessary to allocate an IP address to the device with the “SmartManager” utility on the CD.

1. Connect the dome camera/device to the network and power up.

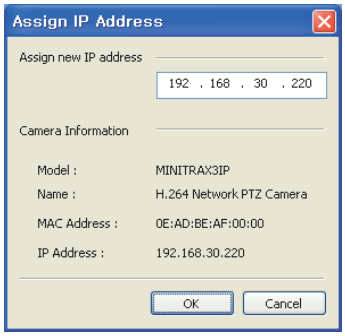
2. Start SmartManager utility (Start > All programs > SmartManager > SmartManager). The main window will display, and after a short while any network devices connected to the network will be displayed in the list.


SmartManager
File View Help
IP Filter: 192 . 168 . 30 . 220 ~ 192 . 168 . 30 . 255 Apply
All Devices (1)
MINITRAX3IP (1)
ONVIF
Group
Model Name Name MAC Address IP Address Wireless IP Address Zero Conf. IP Version
MINITRAX3IP H.264 Network PTZ Cam... 0E:AD:BE:AF:00:00 192.168.30.220 169.254.13.18 2.6.4-release
Ready
CAP NUM SCRL

3. Select the dome camera on the list and click right button of the mouse.
You can see the pop-up menu as below.



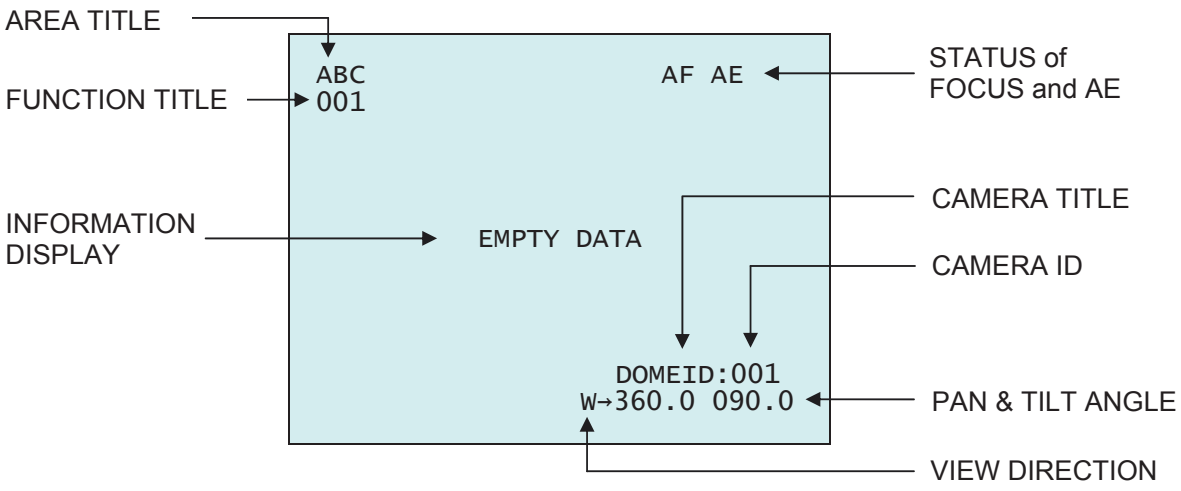
4. Select Assign IP Address. The Assign IP window will display. Enter the required IP address.



Note: For more information, refer to the SmartManager User’s Manual.

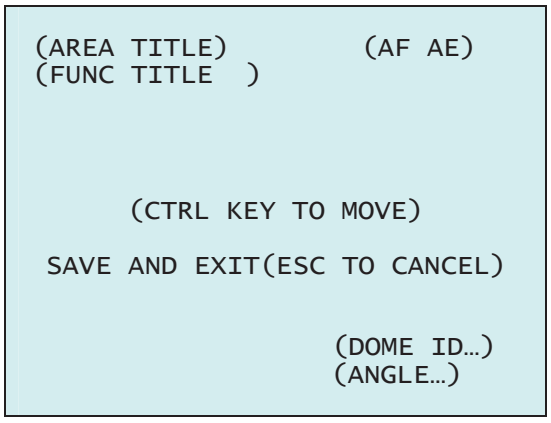
2.7 Getting Started

Once installed apply power to the dome camera. The dome camera will start a configuration sequence.



OSD Position

The dome can move the OSD position in the OSD position setup.



OSD Position Setup

Chapter 3 — Program and Operation

3.1 Dome Camera Selection

Before you program or operate a dome camera, you must select the dome camera by pressing **No.** + **CAM** keys.

Example: Pressing **1** , **0** + **CAM** keys sequentially will select dome camera 10. The selected dome camera ID will be displayed on the LCD monitor of the keyboard controller.

3.2 Accessing the On-Screen Menu Utility

You can call up the On-screen menu utility on your monitor by pressing the **MENU** key on the keyboard controller, the following On-screen menu utility will appear:

```
            DOME MENU

    AUTO SCAN
    PRESET
    TOUR
    PATTERN
    AREA TITLE
    PRIVACY ZONE
    CAMERA
    DOME SETUP
    DOME COMMUNICATION
    FUNCTION RUN
    EXIT(ESC TO EXIT)
```

3.3 How to control the On-Screen Menu Utility

Function	Button
Call the On-screen menu utility.	**MENU**
Navigate through the menu items.	**Joystick up or down**
Go into the sub-menu items.	**Joystick left or right or IRIS Open**
Change value. Enter the editing title mode.	**Joystick left or right or** **Zoom handle twist or Tele , Wide**
Change value of angle.	**CTRL + Joystick**
Enter the changing angle mode.	**IRIS Open**
Exit the changing angle mode.	**IRIS Close**
Escape (EXIT)	**ESC**

3.4 Auto Scan (Shortcut: **SCAN**)

The Auto Scan supports up to 5 programmed angles at user-programmable speeds.
Follow these steps to program Auto Scan:

```
          AUTO SCAN SETUP

  NUMBER          : 01
  TITLE           : A01
  MODE            : NORMAL
  SPEED           :  5 STEP
  START ANGLE     : ----- -----
  END ANGLE       : ----- -----
  SCAN DIR        : CCW
  SWAP            : OFF
  DWELL           : 03 SEC
  SAVE AND EXIT(ESC TO CANCEL)
```

NUMBER : 01 ~ 04, **09**: AUTO-PAN mode.
TITLE : up to 12 characters.
MODE : NORMAL, VECTOR, RANDOM (AUTO-PAN mode: NORMAL, RANDOM only).
NORMAL : Move from start point to end point in panning only.
VECTOR : Move from start point to end point including tilt and zoom simultaneously and linearly.
RANDOM : Move randomly between the start point and the end point.

SPEED : 01 ~ 13 step, the lower number means the slower speed.
SCAN DIR : Set the Scan direction, CCW(Counter Clock Wise), CW(Clock Wise).
SWAP : Swap the start point for the end point.
DWELL : Set the dwell time at the both end, 01 ~ 99 seconds.

1. Press the **SCAN** key to enter the Auto Scan menu directly. Or press the **MENU** key to display the main menu on the monitor. Scroll to Auto Scan and push the **Joystick** to the right.
2. Select "**NUMBER**" and set the desired number by pushing the **Joystick** to the left or right.
3. Select "**TITLE**" and twist the **Joystick** to enter the title edit mode.
4. Twist the **Joystick** to change the alphanumeric characters and move the next position by pushing the **Joystick** to the left or right. Or move down to the character table and press the **CTRL** or **IRIS Open** key at the desired character then the cursor position moves to the next position automatically. Push the **Joystick** to the left or right at the "ALL DELETE" field to delete all characters. Push the **Joystick** to the left or right at the "EXIT" field to finish title edit menu.

```
          TITLE EDIT MENU

       A01
       *
       A B C D E F G H I J
       K L M N O P Q R S T
       U V W X Y Z 0 1 2 3
       4 5 6 7 8 9 ( )
      ALL DELETE
      EXIT(ESC TO EXIT)
```

5. Select "**MODE**" and "**SPEED**".

6. Select "**START ANGLE**". Hold down the **CTRL** key while selecting the start position using the **Joystick**. Current panning position will be displayed. Release the **CTRL** key to complete the selection of the start position. Or press the **IRIS Open** key then the "CTRL" displays. Move the desired position and the zoom position. Press the **IRIS Close** key then the "CTRL" disappears. To adjust at the 0.1 degree interval, twist the **Joystick** at the pan field and the tilt field. To adjust at the one zoom interval, twist the **Joystick** at the zoom field.

7. Select "**END ANGLE**". Hold down the **CTRL** key while moving the **Joystick** to select the end position. The end position angle should be larger than start position. Release the **CTRL** key to complete the selection of the end position. Or press the **IRIS Open** key then the "CTRL" displays. Move the desired position and the zoom position. Press the **IRIS Close** key then the "CTRL" disappears. To adjust at the 0.1 degree interval, twist the **Joystick** at the pan field and the tilt field. To adjust at the one zoom interval, twist the **Joystick** at the zoom field.

8. Set "**SCAN DIR**" to CCW or CW.

9. Select "**SWAP**", Set to ON to exchange the start angle and the end angle.

10. Set "**DWELL TIME**".

11. Select "**SAVE AND EXIT**" and push the **Joystick** to the right or press the **IRIS Open** key. Press the **ESC** or **IRIS Close** key to exit the program without saving.

NOTE: Pressing the HOME key delete stored data at the angle field.

To set the position using the Preset position:

a. Before entering the Auto Scan menu, select a Preset position as a starting point for Auto Scan.

Example: **2** + **PRST** keys and do step 1 to 5. In step 6, just press the **Ctrl** key at the start angle position, the current position will be displayed as a start position.

b. Save and Exit from the menu.

c. In normal mode, call a Preset to be the end point of Scan. Press **3** + **PRST** keys then press the **SCAN** key to enter the Auto Scan menu. Move the cursor position to END ANGLE. Just press the **CTRL** key at the end angle position. Save and exit from the menu.

Press the **SCAN** key on the angle field to display with the small OSD. Then the screen will show as below.

```
      AUTO SCAN AREA SETUP
                    (CTRL KEY)


NUMBER01
START   : ----- -----
END     : ----- -----
EXIT(ESC TO EXIT)
```

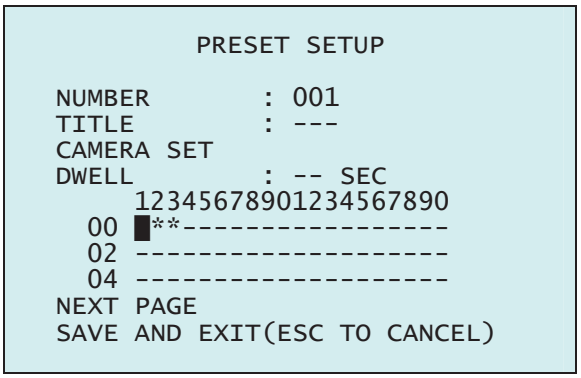
The setting procedure is the same as above.

NOTE: 09: AUTO-PAN mode (endless panning)

3.5 Preset (Shortcut: PRST)

If you need to view specific places routinely, you should program Presets. A Preset is a programmed video scene with automatic pan, tilt, zoom, focus, and AE settings. Once programmed, placing the number position and pressing the **PRST** key on your controller calls up that Preset automatically. In addition, Presets may be assigned the “home” position for the dome camera. As many as 120 Presets, whose positions are saved in the dome’s firmware, may be programmed.

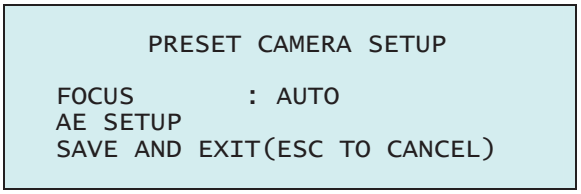
There are two pages of Preset menu. Each page has 60 Presets. Pages can be scrolled by pushing the **Joystick** to the left or right on the first or last No. of Preset.



- : blank Preset position
* : position has the Preset
▉ : current cursor position

Follow steps below to store the Preset positions:

1. Press the **PRST** key to enter the Preset menu directly. Or press the **MENU** key to display the main menu on the monitor. Scroll to Preset and push the **Joystick** to the right.
2. Select the blank Preset position to be stored by pushing the **Joystick** up, down, right, or left.
3. After selecting a blank position, press and hold the **CTRL** key. Use the **Joystick** to control the direction of the camera and lens.
4. After aiming the camera (view direction and lens control), release the **CTRL** key. The cursor will be on the “**TITLE**” after saving data then twist the **Joystick** or press the **Tele** or **Wide** key to edit the Preset title. Follow the procedure of the Auto Scan above to edit titles.
5. Select “**CAMERA SET**” and pushing the **Joystick** to the left or right. Then the Preset camera setup displays.



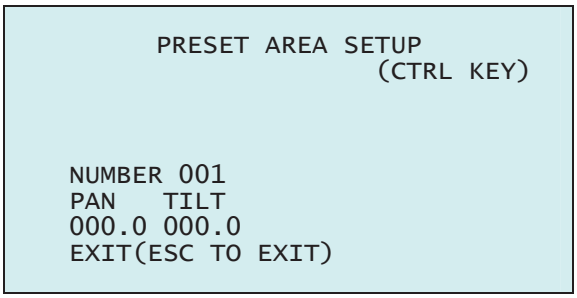
Set **FOCUS** : AUTO, MANUAL, ONE PUSH

Select “**AE SETUP**” and push the **Joystick** to the left or right. Then the AE setup displays. Refer to the AE SETUP in the camera setup.

6. Set "**DWELL TIME**". (03 ~ 99 seconds)
7. To select the next page of Presets, scroll the page by pushing the **Joystick** to the left on the first and last columns of the menu.
8. Repeat step 2 through 7 for each additional Preset position.
9. Select "**SAVE AND EXIT**" and push the **Joystick** to the right or press the **IRIS Open** key. Press the **ESC** or **IRIS Close** key to exit the program without saving.

NOTE: Press the HOME key at programmed Preset position(*) to delete a programmed Preset view.

The position, which is marked with the ∗, already has the Preset view assigned. Press the **PRST** key on the * to review the stored Preset. The camera will show the stored Preset scene.



Hold down the **CTRL** key while selecting the desired scene using the **Joystick**. Current position will be displayed. Release the **CTRL** key to complete. Or Press the **IRIS Open** key then the "CTRL" displays. Move the desired position and the zoom position. Press the **IRIS Close** key then the "CTRL" disappears. Select "EXIT" and push the **Joystick** to the right.

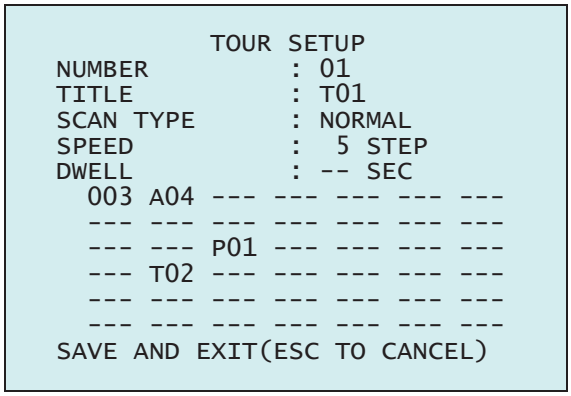
3.6 Shortcut of Preset Program

After selecting the desired scene, press No. (**1** to **120**), and press the **CTRL** and **PRST** keys subsequently. The current view will be stored to the selected Preset number if the Preset number is empty. If selected Preset number is not empty, "*OVER WRITE*" message will be displayed on the monitor and select the "OK" and push the **Joystick** to the right to overwrite.

Example: **1** , **0** , **1** + **CTRL** + **PRST** keys will store current view as Preset no. **101**. In this case, focus will be programmed as Auto, dwell time will be set to 3 second, and the current AE mode will be programmed.

3.7 Tour (Shortcut: TOUR)

There are 4 programmable Tours. Each Tour consists of up to 42 Preset positions, Patterns, Scans or other Tours (second-level). Using second-level Tours, it can be expanded to over 150 functions in a single Tour.



---	: blank position
SCAN TYPE	: NORMAL, VECTOR
DWELL	: 03 ~ 99 SEC
003	: Preset (1 ~ 120)
A04	: Auto Scan (1 ~ 4)
P01	: Pattern (1 ~ 4)
T02	: Tour (1 ~ 4)

Follow the steps below to program the Tours:

1. Press the **MENU** key to display the main menu on the monitor. Scroll to Tour and push the **Joystick** to the right to enter the Tour menu. Or just press the **TOUR** key on the keyboard.
2. Select "**NUMBER**" and set the desired number by pushing the **Joystick** to the left or right.
3. Choose a blank position to be programmed by pushing the **Joystick** up, down, right, or left.
4. To add a stored Preset, twist the **Joystick** then the stored Preset number displays.
5. To place functions other than Preset, press the **TOUR**, **PTRN**, or **SCAN** keys for Tour, Pattern or Auto Scan respectively.
6. You can also overwrite the programmed number and remove a stored number from the Tour, press the **HOME** key on the stored number, a blank position mark (---) will be displayed.
7. Repeat step 2 through 6 for each desired position. Each title will be displayed on top of the line.
8. To edit the "**TITLE**", follow the procedure of the Auto Scan above to edit titles.
9. Select "**SAVE AND EXIT**" and push the **Joystick** to the right or press the **IRIS Open** key. Press the **ESC** or **IRIS Close** key to exit the program without saving.

You can expand the Tour sequence by calling other programmed Tours.

NOTE: The speed applies in the vector mode only.

NOTE: In the Tour mode, in conjunction with Preset and Auto Scan, you can make the camera travel from a Preset position to another Preset position at a specific speed.

Example: Preset 001>002>003>004>005>006, Auto Scan 01 starts at Preset 002, ends at Preset 003, Auto Scan 02 starts at Preset 005, ends at Preset 006; Tour 001, 002, A01, 004, A02.

1 ➔ 2 2~3 ➔ 4 ➔ 5~6, repeat
where ➔ : Quick move, ~ : Programmed speed

To change the dwell time of the Preset in the Tour:

Use the **Joystick** to move the cursor to a stored Preset position.
By pressing the **PRST** key, the camera will move to the stored Preset view and the cursor moves to the dwell time field.
After changing the dwell time, press the **PRST** key and the cursor moves to the Preset number.

To assign the functions other than Preset in the Tour when the function key is not existed:

Use the **Joystick** to move the cursor to a stored Preset position.
Pressing the **CTRL** or **IRIS Open** key will change the Preset number to other function (Auto Scan, Pattern, Tour or Preset) with the first programmed number.
To change the number, twist the **Joystick** or press the **Tele** or **Wide** key.

3.8 Pattern (Shortcut: PTRN)

The Pattern feature records user control of the selected dome camera. Up to 4 Patterns can be stored and played back by pressing No. + PTRN keys subsequently.

```
          PATTERN SETUP
                          (CTRL KEY)
  NO      TITLE     SEC  PERCENT
  01 : P01          000   00.0%
  02 : P02          000   00.0%
  03 : P03          000   00.0%
  04 : P04          000   00.0%
  TOTAL             000   00.0%
  SAVE AND EXIT(ESC TO CANCEL)
```

Follow steps below to program the Pattern:

1. Press the **MENU** key to display the main menu on the monitor. Scroll to Pattern and push the **Joystick** to the right to enter the Pattern menu. Or just press the **PTRN** key on the keyboard.

2. Select the desired Pattern to be programmed by pushing the **Joystick** up or down. If the Pattern is not 000, a Pattern has already been recorded. Patterns can be overwritten.

3. Press and hold down the **CTRL** key while controlling the camera direction and zoom with the **Joystick**. The dome will be automatically recorded until you release the **CTRL** key. Or press the **IRIS Open** key then the “CTRL” displays. Move the position and the zoom position. Press the **IRIS Close** key then the “CTRL” disappears.

4. To edit the “**TITLE**”, follow the procedure of the Auto Scan above to edit titles.

5. Select “**SAVE AND EXIT**” and push the **Joystick** to the right or press the **IRIS Open** key. Press the **ESC** or **IRIS Close** key to exit the program without saving.

NOTE: Press the HOME key at any programmed position to delete the Pattern.

NOTE: If Pattern recording time reaches 200 seconds, it will automatically stop for a moment.

Press the **PTRN** key on the title field to display with the small OSD. Then the screen will show as below.

```
        PATTERN AREA SETUP
                        (CTRL KEY)


   NUMBER 01
   000  00.0%
   000  00.0%
   EXIT(ESC TO EXIT)
```

The setting procedure is the same as above.

3.9 Area Title

Enter a specific name on programmed angle between START and END. For the screen below, when the camera points at an angle between 124.3° (PAN), 30.7° (TILT) to 359.5° (PAN), 45.4° (TILT), ABC will be displayed on the screen.

```
        AREA TITLE SETUP

NUMBER          : 01
TITLE           : ABC
START ANGLE     : 124.3  30.7
END ANGLE       : 359.5  45.4
SWAP            : OFF
SAVE AND EXIT(ESC TO CANCEL)
```

NUMBER : 01 ~ 08
TITLE : up to 12 characters.
SWAP : Swap the start point for the end point.

1. Select "**NUMBER**" and set the desired number by pushing the **Joystick** to the left or right.
2. To edit the "**TITLE**", follow the procedure of the Auto Scan above to edit titles.
3. Select "**START ANGLE**". Hold down the **CTRL** key while selecting the start position using the **Joystick**. Current panning position will be displayed. Release the **CTRL** key to complete the selection of the start position. Or press the **IRIS Open** key then the "CTRL" displays. Move the desired position. Press the **IRIS Close** key then the "CTRL" disappears. To adjust at the 0.1 degree interval, twist the **Joystick** at the pan field and the tilt field.
4. Select "**END ANGLE**". Hold down the **CTRL** key while moving the **Joystick** to select the end position. Release the **CTRL** key to complete the selection of the end position. Or press the **IRIS Open** key then the "CTRL" displays. Move the desired position. Press the **IRIS Close** key then the "CTRL" disappears. To adjust at the 0.1 degree interval, twist the **Joystick** at the pan field and the tilt field.
5. Select "**SWAP**". Set to ON to exchange the start angle and the end angle.
6. Select "**SAVE AND EXIT**" and push the **Joystick** to the right or press the **IRIS Open** key. Press the **ESC** or **IRIS Close** key to exit the program without saving.

3.10 Privacy Zone

Hide up to 4 unwanted scenes in a camera.

```
      PRIVACY ZONE SETUP
                      (CTRL KEY)
NO   TITLE              METHOD
01   ABC           ON   BLOCK
02   DEF           ON   V.OFF
03                 OFF  ----
04                 OFF  ----

SAVE AND EXIT(ESC TO CANCEL)
```

1. Place the cursor at the title field.
2. Hold down the **CTRL** key displays the privacy area menu while selecting the position using the **Joystick**. Current position will be displayed. Release the **CTRL** key to complete the selection of the position.
   Or press the **IRIS Open** key then the privacy area menu displays. Move the desired position. Press the **IRIS Close** key then the “CTRL” disappears and returns to the previous menu.

```
       PRIVACY AREA MENU
                    (CTRL KEY)

                     CONTROL
            NUMBER 001
            354.8  344.8
```

3. Place the cursor at the “**TITLE**” field. Twist the **Joystick** to enter the title edit mode. Follow the procedure of the Auto Scan above to edit titles.
4. To turn the stored zone On or Off, twist the **Joystick** or press the **Tele** or **Wide** key.
5. Set the “**METHOD**”, “BLOCK” or “V.OFF(video off)”.
6. Select “**SAVE AND EXIT**” and push the **Joystick** to the right or press the **IRIS Open** key. Press the **ESC** or **IRIS Close** key to exit the program without saving.

NOTE: Press the HOME key to delete programmed Privacy Zone at the title field.

3.11 Camera Menu

```
          CAMERA SETUP

FOCUS CONTROL
WB CONTROL
AE CONTROL
DNR CONTROL
SHARPNESS          : 07
RESOLUTION         : MID
DIGITAL ZOOM       : OFF
IMAGE FLIP         : OFF
PRESET FREEZE      : OFF
SAVE AND EXIT(ESC TO CANCEL)
```

SHARPNESS The higher the value, the more edges in the picture will be enhanced. (0 ~ 15)

RESOLUTION Select resolution mode (LOW / MID / HIGH)

DIGITAL ZOOM OFF: Zoom range is limited to the optical.
2X: Zoom is extendable up to 2X of digital range.
4X: Zoom is extendable up to 4X of digital range.
8X: Zoom is extendable up to 8X of digital range.
MAX: Zoom is extendable Max digital zoom range.

IMAGE FLIP This function turns the video output from the camera upside down and reverses it horizontally.
This option is helpful to install in the opposite side.

PRESET FREEZE ON: the image is frozen during calling Preset.

• FOCUS CONTROL

```
            FOCUS SETUP

MODE             : AUTO
FOCUS LIMIT      : 1.0M
SAVE AND EXIT(ESC TO CANCEL)
```

MODE AUTO / MANUAL / ONE PUSH / CONSTANT MANUAL
Use manual mode in normal use.

FOCUS LIMIT This distance is approximate value and the focus operate from the setting value.

CAUTION: Avoid continuous, 24-hour use of the auto focus. This will shorten the lifespan of the lens.

• WB (White Balance) CONTROL

```
            WB SETUP

  MODE            : AWB
  R GAIN          : ---
  B GAIN          : ---
  SAVE AND EXIT(ESC TO CANCEL)
```

MODE	AWB / WAWB / INDOOR / OUTDOOR / MANUAL
AWB	Computes the white balance value output using color information from the entire screen automatically. (2500 to 9500 °K)
WAWB	Wide range auto white balance mode (1800 to 10500 °K)
INDOOR	Indoor white balance mode
OUTDOOR	Outdoor white balance mode
MANUAL	Manual mode, you can change R and B Gain manually.
RGAIN	0 ~ 255
BGAIN	0 ~ 255

RGAIN / BGAIN modes are controllable only in MANUAL Mode.

• AE CONTROL

```
            AE SETUP

  MODE              : MANUAL
  SLOW SHUTTER      : ---
  GAIN              : MIN
  BRIGHT            : 003
  SHUTTER           : 1/60
  FLICKERLESS       : ---
  BACK LIGHT        : OFF
  WDR               : ---
  WDR LEVEL         : ---
  NIGHT SHOT        : AUTO
  SAVE AND EXIT(ESC TO CANCEL)
```

MODE	AE1 / AE2 / SHUTTER PRIO / MANUAL
AE1	Auto exposure mode1 (Use to normal surroundings: indoor)
AE2	Auto exposure mode2 (Use to high brightness surroundings: outdoor)
SHUTTER PRIO	Variable Shutter speed, Auto Gain
MANUAL	Variable Shutter speed, Gain
SLOW SHUTTER	OFF / ON
GAIN	MIN / LOW / MID / HIGH
BRIGHT	1 ~ 15
SHUTTER	1/60(50), 1/100(120), …, 1/10000, 1/100000
FLICKERLESS	OFF / ON
BACK LIGHT	OFF / ON (**NOTE: When ON, WDR will be disabled.)**
WDR	OFF / ON **(NOTE: When ON, BACKLIGHT will be disabled.)**
WDR LEVEL	10 ~ 50
NIGHT SHOT	AUTO / ON / OFF / GLOBAL

NOTE: Values in ( ) are for PAL Camera. The WDR operates in AE1 mode only.
NOTE: When BACKLIGHT set ON, focus issues may occur in certain lighting conditions.

The NIGHT SHOT option removes the IR cutoff filter of the camera and makes the camera sensitive to near infrared.

AUTO Camera goes in to B&W mode at low light.
GLOBAL Controlled by the keyboard
(NOTE: GLOBAL function operates F2E protocol only)
The operator can enable NIGHT SHOT for all dome cameras at the same time.
If the NIGHT SHOT mode is set to GLOBAL, “999” + **ENTER** will turn Off the NIGHT SHOT mode and “888” + **ENTER** will turn On the NIGHT SHOT mode.
ON B/W mode
OFF Color mode

NOTE: AUTO in NIGHT SHOT function is not applied in “MANUAL” mode of AE Control.

• DNR CONTROL

```
              DNR SETUP

2DNR(1)             : 001
3DNR(1)             : 010
2DNR(2)             : 001
3DNR(2)             : 003
SAVE AND EXIT(ESC TO CANCEL)
```

2DNR(1), 2DNR(2) Select 2D noise reduction level (OFF / 1 ~ 7)
3DNR(1), 3DNR(2) Select 3D noise reduction level (OFF / 1 ~ 31)

NOTE: DNR(1) applied when motor stopped. DNR(2) applied when motor moving.

3.12 Dome Setup

```
        CONFIGURATION MENU

LANGUAGE          : ENGLISH
HOME FUNCTION SETUP
OSD DISPLAY
VIEW ANGLE SETUP
INITIALIZE DATA
ORIGIN OFFSET
DOME RESET
SYSTEM MENU
SYSTEM INFORMATION
SAVE AND EXIT(ESC TO CANCEL)
```

• LANGUAGE SETUP

LANGUAGE : Select the desired language.

• HOME FUNCTION SETUP

```
        HOME FUNCTION SETUP

HOME FUNCTION     : NONE
FUNCTION NUMBER   : ---
WAITING TIME      : 120 SEC
FUNCTION ENABLE   : OFF
SAVE AND EXIT(ESC TO CANCEL)
```

HOME FUNCTION : None / Tour / Pattern / Auto Scan / Preset
FUNCTION NUMBER : - - -
WAITING TIME : 10 ~ 240 seconds
FUNCTION ENABLE : ON / OFF

The Home function can be set so that the camera automatically goes to Tour, Pattern, Auto Scan or Preset after the keyboard controller has been idle for a specified amount of time. For example, if the controller is idle for 120 seconds, the camera goes to Preset 1.

Follow these steps to program the Home position:

1. Select "**HOME FUNCTION**" by pushing the **Joystick** to the left or right to scroll through the None, Tour, Pattern, Auto Scan or Preset functions.
2. Select "**FUNCTION NUMBER**" and push the **Joystick** to the left or right. The recorded function number will scroll.
3. Select "**WAITING TIME**" and push the **Joystick** to the left or right to select from 10 to 240 seconds.
4. Select "**FUNCTION ENABLE**" and turn to ON or OFF by pushing the **Joystick** to the left or right.

• OSD DISPLAY

```
        OSD DISPLAY SETUP

CAMERA TITLE         : DOMEID
VIEW DIRECTION       : OFF
DOME OSD             : ON
AREA TITLE           : OFF
PRESET TITLE         : CONSTANT
FOCUS EXPOSURE       : ON
OSD POSITION SETUP

SAVE AND EXIT(ESC TO CANCEL)
```

CAMERA TITLE : up to 6 characters

VIEW DIRECTION : ON / OFF
"ON" sets current direction as N(North) and the coordinate angle to 000. "OFF" hides the directional title. Every 90 degrees of clockwise rotation will change the title to E(East), S(South) or W(West). If using the ON/OFF option frequently, it is recommended to set "North" as a Preset. Recall the "North" Preset before enabling the directional title.

DOME OSD : ON / OFF
All display or title will disappear when DOME OSD DISPLAY is set to OFF.

AREA TITLE : ON / OFF
If this option is enabled, the area title displays when the camera moves.
NOTE: The DOME OSD DISPLAY must be enabled.

PRESET TITLE : CONSTANT / OFF / 3, 30, 60, 120, 180 seconds
Set the Preset title display time.

FOCUS EXPOSURE : ON / OFF
ON: FOCUS and EXPOSURE displays. (AF AE)

OSD POSITION SETUP
Select the OSD option with the **Joystick** up and down, press the **CTRL** key and adjust the position by the **Joystick**.

```
(AREA TITLE)          (AF AE)
(FUNC TITLE  )




      (CTRL KEY TO MOVE)

 SAVE AND EXIT(ESC TO CANCEL)


                    DOMEID:XXX
                    XXX.X XXX.X
```

• VIEW ANGLE SETUP

```
        VIEW ANGLE SETUP

PANNING RANGE
FLIP                : 90°
TILT LIMIT          : OFF
SAVE AND EXIT(ESC TO CANCEL)
```

FLIP: OFF, AUTO, 90°, 100°, 110°, 120°,

OFF: The dome camera moves until 90° vertically.

AUTO: When the camera reaches the floor directly above the moving object, it will stop. At that time, release the **Joystick** instantly and pull it down again to run the auto-flip function. When you use the panning range, it is recommended to use the flip mode to AUTO.

90°, 100°, 110°, 120°: Allows the image to flip digitally when the camera moves over the setting angle vertically.

TILT LIMIT:

This option is designed to limit the view angle as there is some obstruction in zooming out on specific areas of the tilt angle.

ON: When this option is enabled, the range of the tilt angle will be limited to 10 degree. This can prevent obstruction or bad focusing problems caused by the horizontal line of the semi sphere in the bubble.

OFF: When this option is disabled, the range of the tilt angle is not limited. When you zoom out within the range of the tilt angle, you will see the horizontal line of the semi sphere in the bubble. Focus issues may occur in certain lighting conditions.

PANNING RANGE

When the dome camera is installed near a wall, panning range can be limited by user.

```
      PANNING RANGE SETUP
                    (CTRL KEY)

RIGHT LIMIT       : 000.0
LEFT LIMIT        : 000.0
ENABLE            : OFF
SWAP              : OFF
AUTO PAN          : ON
SAVE AND EXIT(ESC TO CANCEL)
```

1. Place the dome camera under 90 degree vertically.
2. Set “**RIGHT LIMIT**” by pushing the **Joystick** to the right.
3. Set “**LEFT LIMIT**” by pushing the **Joystick** to the left.
4. Set “**ENABLE**” to ON to use.

To exchange the right and the left limit, set “**SWAP**” to ON.
To apply limits on the auto pan (endless panning), set “**AUTO PAN**” to ON.

NOTE: When the flip mode is 90°, 100°, 110° or 120° and you moves over 90° vertically, the panning range operates in opposite side.

• INITIALIZE DATA

```
        INITIALIZE DATA

FACTORY DEFAULT
ERASE PROGRAMMED DATA
PRESET FOCUS DEFAULT
EXIT(ESC TO EXIT)
```

FACTORY DEFAULT

Select "**FACTORY DEFAULT**" to initialize the data.

```
        FACTORY DEFAULT

        ARE YOU SURE ?

            CANCEL
              OK
```

ERASE PROGRAMMED DATA

Erase all stored data from the Flash-ROM of the selected dome camera. You will be asked to enter ON or OFF. If you desire to erase all data then select "ERASE" run, otherwise press the **ESC** key to exit without erasing. The erased data includes all stored data (Auto Scan, Preset, Tour, Pattern, …) except origin offset.

The offset value is still valid after all data is erased. The offset value can be zero with default set of Offset origin menu.

```
      ERASE PROGRAMMED DATA

AUTO SCAN          : ON
PRESET             : ON
TOUR               : ON
PATTERN            : ON
AREA TITLE         : ON
PRIVACY ZONE       : ON
CAMERA             : ON
DOME SETUP         : ON
ERASE
SAVE AND EXIT(ESC TO CANCEL)
```

PRESET FOCUS DEFAULT

This menu set the default mode of the focus when you save the Preset.

```
     PRESET FOCUS DEFAULT

FOCUS       : AUTO

SAVE AND EXIT(ESC TO CANCEL)
```

FOCUS : AUTO / MANUAL / ONE PUSH

• ORIGIN OFFSET

```
          OFFSET SETUP
                      (CTRL KEY)

  PAN OFFSET          : 000.0
  TILT OFFSET         : 000.0
  ENABLE              : OFF
  SAVE AND EXIT(ESC TO CANCEL)
```

This feature is useful to align a new dome camera exactly the same as the previously installed dome camera.
Dome camera's origin set and all data initialize option do not override offset values. Only the default set option in this menu will set the offset value to zero. This can be used to avoid ceiling obstructions.

• DOME RESET

```
            DOME RESET

          ARE YOU SURE ?

              CANCEL
                OK
```

This feature is used to re-calibrate the orientation of a selected dome camera. Origin offset value is not affected by this function. (Offset is still valid after origin set.)

• SYSTEM MENU

```
            SYSTEM MENU

  MOTOR SETUP
  PASSWORD EDIT
  ORIGIN CHECK
  CALIBRATION           : ON
  PASSWORD ENABLE       : OFF
  MENU TIME OUT         : OFF
  BLINK CURSOR          : ON
  DOME ANSWER           : OFF
  SAVE AND EXIT(ESC TO CANCEL)
```

CALIBRATION : ON(Auto origin check) / OFF
PASSWORD ENABLE : ON(requires the password to enter menu) / OFF
MENU TIME OUT : ON(5mintues) / OFF(always menu display)
BLINK CURSOR : ON / OFF(no blinking cursor)
DOME ANSWER : ON / OFF(no acknowledge command from the dome)
This option is helpful to escape the collision of the command using some DVR.

MOTOR SETUP

Motor Setup menu provides the pan and tilt speed of a camera. User can set the desired speed with pushing the **Joystick** to the left or right. During operation, pressing **153** + **ON** keys will change the speed to the SLOW mode and pressing **153** + **OFF** keys will change the speed to the Normal mode.

Press and hold the **CTRL** key and moving the **Joystick** will operate with the TURBO speed mode.

```
            MOTOR SETUP

PROPOTIONAL P/T        : ON
P/T MODE               : NORMAL

SAVE AND EXIT(ESC TO CANCEL)
```

PROPOTIONAL P/T	: ON / OFF
P/T MODE	: SLOW / NORMAL / TURBO
SLOW MAXIMUM SPEED	: 40°/second
NORMAL MAXIMUM SPEED	: 90°/second
TURBO MAXIMUM SPEED	: 380°/second

PASSWORD EDIT

```
      PASSWORD EDIT SETUP
                    (CTRL KEY)
INPUT PASSWORD
PASSWORD :

     A B C D E F G H I J
     K L M N O P Q R S T
     U V W X Y Z 0 1 2 3
     4 5 6 7 8 9 ( )

SAVE AND EXIT(ESC TO CANCEL)
```

You can change the password with 6-digit character in this menu.

The default password is **555555**.

When the password enable is on, the input password window displays to enter the menu.

At this time, move the cursor to the desired character with the **Joystick** and press the **CTRL** or **IRIS Open** key.

ORIGIN CHECK

If you find the dome in the wrong position during operation, execute this origin check and the dome camera will return to the right position after the origin check operation.

```
          ORIGIN CHECK

        ARE YOU SURE ?

            CANCEL
              OK
```

Pressing **151** + **ON** keys will execute the origin check.

• SYSTEM INFORMATION

```
      SYSTEM INFORMATION

  CAMERA TYPE : xxxxx-Vx.xxxx
  H/W VERSION : Vx.xx-xxxx
  ROM VERSION : Vx.xxxxx
  PROTOCOL    : xxxx
  BAUDRATE    : 9600

  EXIT(ESC TO EXIT)
```

The system information provides essential information about the dome camera if service is required. This screen displays the camera type and ROM version. The information on this screen cannot be modified.

3.13 Dome Communication

```
    DOME COMMUNICATION SETUP

  DOME ID   : 001
  PROTOCOL  : AUTO
  BAUDRATE  : 9600
  SAVE AND EXIT(ESC TO CANCEL)
```

To prevent damage, each dome camera must have a unique address (ID).

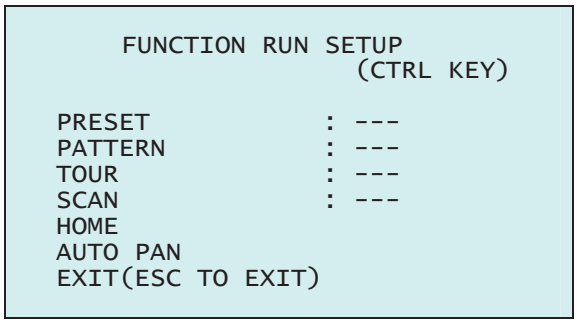
When installing multiple dome cameras using a multiplexer, it is suggested that the dome camera address match the multiplexer port number.

The factory default setting is 1.

Example: Port 1 = Dome 1, Port 2 = Dome 2 … Port 16 = Dome 16. If more than 16 dome cameras are installed using two or more multiplexers, ID of the dome camera should be ID of MUX x No. of camera IN. (e.g. multiplexer ID= n, Camera IN= m then ID of Dome =16x(n-1)+m)

3.14 Function Run

This Function Run menu allows you to execute the function when you use a keyboard or a DVR without the function keys (Preset, Pattern, Tour and Scan).



1. Select the desired Function by pushing the **Joystick** up or down.

2. Select the number by twist the **Joystick** in PRESET, PATTERN, TOUR and SCAN.

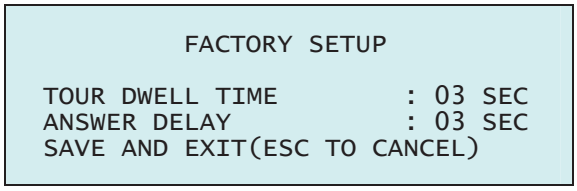
3. Press the **CTRL** or **IRIS Open** key to execute.

NOTE: To execute the function, you should save the function (PRESET, PATTERN, TOUR, and SCAN) first.

- **HOME**
  Select “HOME” and press the **CTRL** key. The dome camera goes to the default position that it returns to after an assigned period of inactivity passes. The default position may be a Preset, Tour, Pattern or no action.

- **AUTO PAN**
  You can execute the endless auto pan to turn in one direction continuously by selecting the Auto Pan.

3.15 Factory Setup



Pressing **250** + **PRST** keys pops up this menu.

TOUR DWELL TIME means the dwell time between Tours.

ANSWER DELAY means the response time of the dome and you don’t need to change in normal condition.

Chapter 4 — Operation by Web Browser

The network camera can be used with Windows® operating system and browsers.
The recommended browsers are Internet Explorer®, Safari®, Firefox®, Opera™ and Google® Chrome® with Windows.

Note: To view streaming video in Microsoft Internet Explorer, set your browser to allow ActiveX controls.

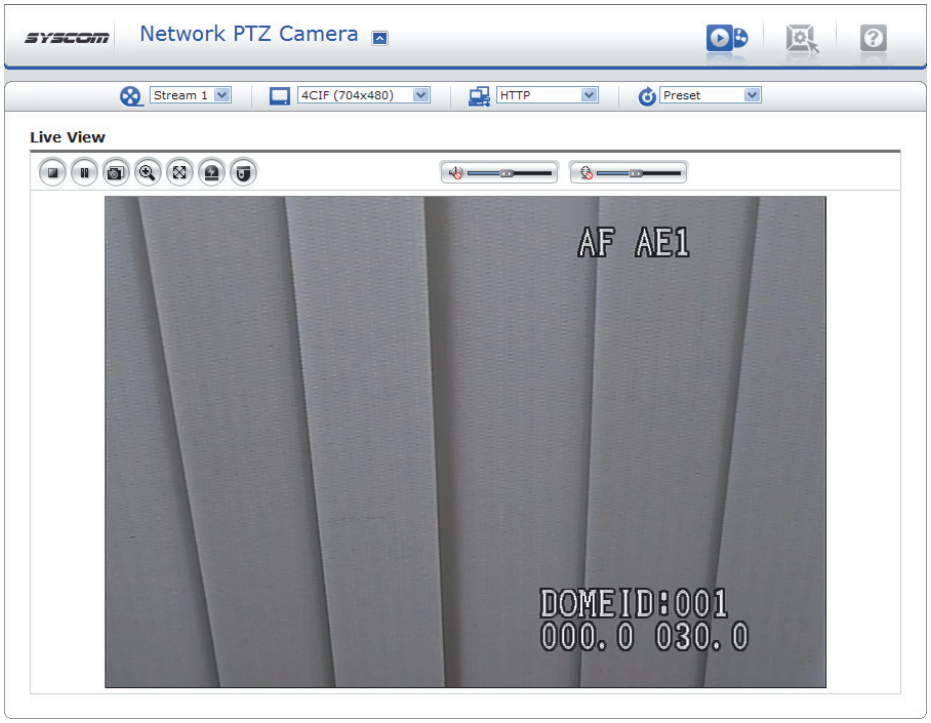
4.1 Access from a browser

1) Start a browser (Internet Explorer).

2) Enter the IP address or host name of the network camera in the Location/Address field of your browser.

3) You can see a starting page. Click Live View or Setup to enter web page.

4) The encoder's **Live View** page appears in your browser.



4.2 Access from the internet

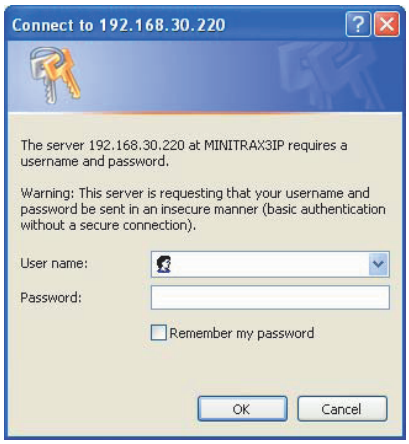
Once connected, the network camera is accessible on your local network (LAN). To access the video encoder from the Internet you must configure your broadband router to allow incoming data traffic to the video encoder. To do this, enable the NAT traversal feature, which will attempt to automatically configure the router to allow access to the video encoder. This is enabled from Setup > System > Network > NAT Traversal.

For more information, please see NAT traversal (port mapping) for IPv4, on “4.5.5 System > 4) Network > ⑥ NAT Traversal”.

4.3 Setting the admin password over a secure connection

To gain access to the product, the password for the default administrator user must be set. This is done in the “Admin Password” dialog, which is displayed when the network camera is accessed for the setup at the first time. Enter your admin name and password, set by the administrator.

Note: The default administrator username and password is “admin”. If the password is lost, the network camera must be reset to the factory default settings.


Connect to 192.168.30.220
The server 192.168.30.220 at MINITRAX3IP requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
User name:
Password:
Remember my password
OK
Cancel

To prevent network eavesdropping when setting the admin password, this can be done via an encrypted HTTPS connection, which requires an HTTPS certificate (see note below).

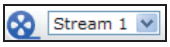
To set the password via a standard HTTP connection, enter it directly in the first dialog shown below. To set the password via an encrypted HTTPS connection, please see Setup > System > Security > HTTPS, on “4.5.5 System > 2) Security > ② HTTPS”.

Note: HTTPS (Hypertext Transfer Protocol over SSL) is a protocol used to encrypt the traffic between web browsers and servers. The HTTPS certificate controls the encrypted exchange of information.

4.4 Live View Page

The live view page comes in seven screen modes like 704x576 (480), 704x288 (240), 352x288 (240), 176x144 (120), 640x480, 320x240 and 160x120. Users are allowed to select the most suitable one out of those modes. Adjust the mode in accordance with your PC specifications and monitoring purposes.

1) General controls



The video drop-down list allows you to select a customized or pre-programmed video stream on the live view page. Stream profiles are configured under Setup > Basic Configuration > Video & Image. Please see “4.5.1 Basic Configuration” for more information.

The resolution drop-down list allows you to select the most suitable one out of video resolutions to be displayed on live view page.

The protocol drop-down list allows you to select which combination of protocols and methods to use depending on your viewing requirements, and on the properties of your network.

The preset drop-down list allows you to select the preset number for the PTZ camera being used. This icon is inactivated if the PTZ settings are not set.

2) Control toolbar

The live viewer toolbar is available in the web browser page only. It displays the following buttons:

The Stop button stops the video stream being played. Pressing the key again toggles the start and stop. The Start button connects to the network camera or starts playing a video stream.

The Pause button pauses the video stream being played.

The Snapshot button takes a snapshot of the current image. The location where the image is saved can be specified.

The digital zoom activates a zoom-in or zoom-out function for video image on the live screen.

The Full Screen button causes the video image to fill the entire screen area. No other windows will be visible. Press the 'Esc' button on the computer keyboard to cancel full screen view.

The Manual Trigger button activates a pop-up window to manually start or stop the event.

The PTZ button activates a pop-up window for Pan, Tilt and Zoom control.

Use this scale to control the volume of the speakers.

Use this scale to control the volume of the microphone.

Use this scale to control the volume of the speakers and microphones.

3) Camera Menu controls

If the network camera has been appropriately configured, the Live View page displays the controls available for the OSD menu.
For more information, please see “Chapter 3 — Program and Operation”.

4) Pan/Tilt/Zoom controls

If the network camera has been appropriately configured, the Live View page displays the controls available for the PTZ (Pan/Tilt/Zoom) or PT device installed. The administrator can enable/disable the controls for specified users.
Please see “4.6 PTZ Control” for more information.

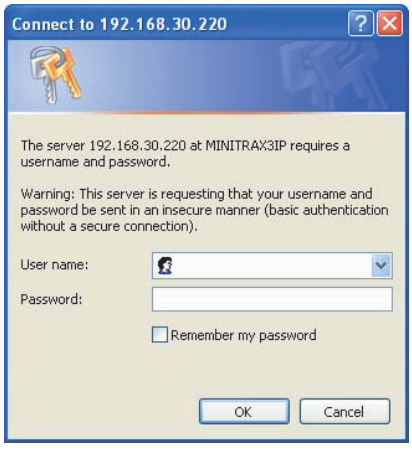
5) Video and Audio Streams

The network camera provides several images and video stream formats. Your requirements and the properties of your network will determine the type you use.
The Live View page in the network camera provides access to H.264, MPEG-4 and Motion JPEG video streams, and to the list of available video streams. Other applications and clients can also access these video streams/images directly, without going via the Live View page.

4.5 Network Camera Setup

This section describes how to configure the network camera, and is intended for product Administrators, who have unrestricted access to all the Setup tools; and Operators, who have access to the settings for Basic, Live View, Video & Image, Audio, Event, and System Configuration.

You can configure the network camera by clicking Setup in the top right-hand corner of the Live View page. Click on this page to access the online help that explains the setup tools.


Connect to 192.168.30.220
The server 192.168.30.220 at MINITRAX3IP requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
User name:
Password:
Remember my password
OK
Cancel

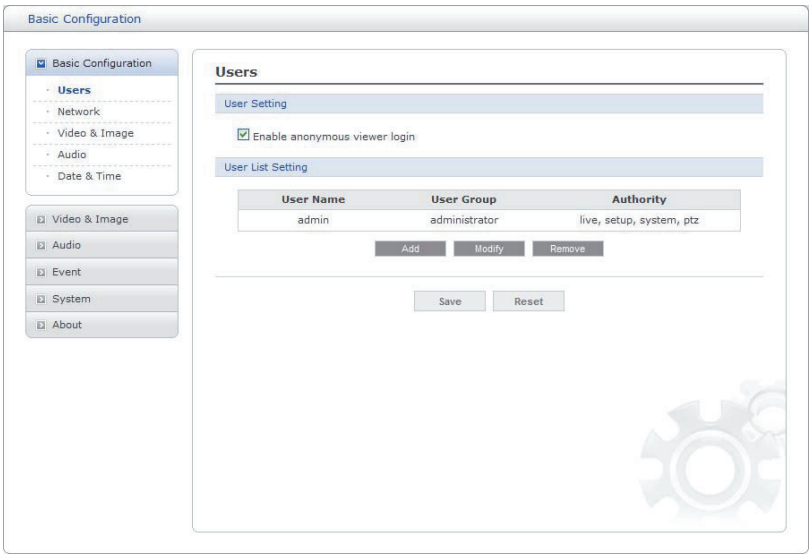
When accessing the network camera for the first time, the “Admin Password” dialog appears. Enter your admin name and password, set by the administrator.

Note: If the password is lost, the network camera must be reset to the factory default settings. Please see “4.8 Resetting to the Factory Default Settings”.

4.5.1 Basic Configuration

1) Users

User access control is enabled by default. An administrator can set up other users, by giving these user names and passwords. It is also possible to allow anonymous viewer login, which means that anybody may access the Live View page, as described below:



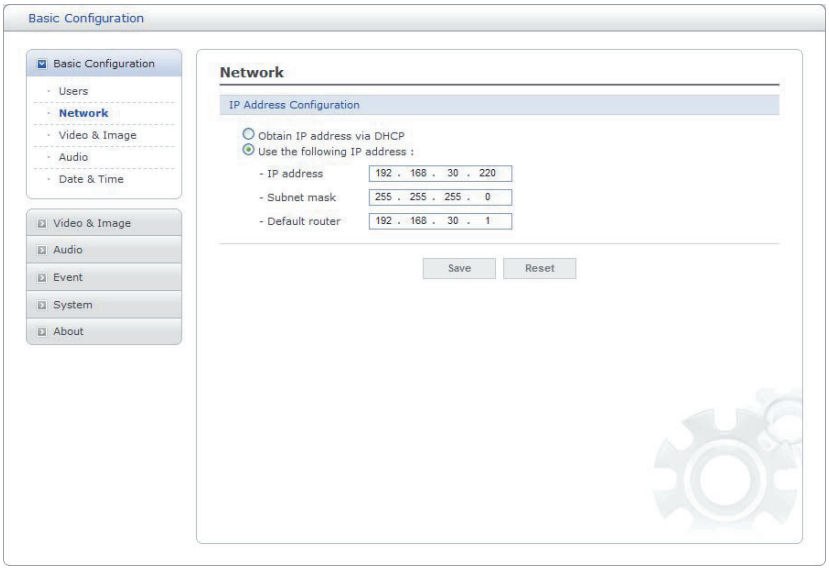
The **user list** displays the authorized users and user groups (levels):

User Group	Authority
Guest	Provides the lowest level of access, which only allows access to the Live View page.
Operator	An operator can view the Live View page, create and modify events, and adjust certain other settings. Operators have no access to System Options.
Administrator	An administrator has unrestricted access to the Setup tools and can determine the registration of all other users.

- **Enable anonymous viewer login:** Check the box to use the webcasting features. Refer to “4.5.2 Video & Image” for more details.

2) Network

The network camera supports both IP version 4 and IP version 6. Both versions may be enabled simultaneously, and at least one version must always be enabled. When using IPv4, the IP address for the video encoder can be set automatically via DHCP, or a static IP address can be set manually. If IPv6 is enabled, the video encoders receive an IP address according to the configuration in the network router. There is also the option of using the Internet Dynamic DNS Service. For more information on setting the network, please see Setup > System > Network, on “4.5.5 System > 4) Network”.



- **Obtain IP address via DHCP:** Dynamic Host Configuration Protocol (DHCP) is a protocol that lets network administrators centrally manage and automate the assignment of IP addresses on a network. DHCP is enabled by default. Although a DHCP server is mostly used to set an IP address dynamically, it is also possible to use it to set a static, known IP address for a particular MAC address.

- **Use the following IP address:** To use a static IP address for the network camera, check the radio button and then make the following settings:

  - IP address - Specify a unique IP address for your network camera.

  - Subnet mask - Specify the mask for the subnet the network camera is located on.

  - Default router - Specify the IP address of the default router (gateway) used for connecting devices attached to different networks and network segments.

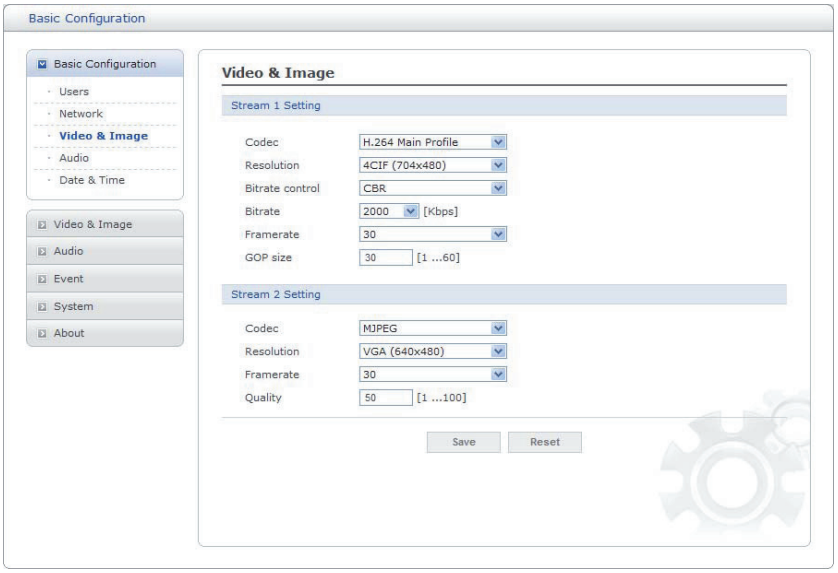
Notes:

1. DHCP should only be enabled if using dynamic IP address notification, or if your DHCP server can update a DNS server, which then allows you to access the network camera by name (host name). If DHCP is enabled and you cannot access the unit, you may have to reset it to the factory default settings and then perform the installation again.

2. The ARP/Ping service is automatically disabled two minutes after the unit is started, or as soon as an IP address is set.

3. Pinging the unit is still possible when this service is disabled.

3) Video & Image



• Stream1 Setting:

- Codec: The codec settings are separated into MPEG-4 and H.264.
H.264 is also known as MPEG-4 Part 10. This is the new generation compression standard for digital video.
This function offers higher video resolution than Motion JPEG or MPEG-4 at the same bit rate and bandwidth, or the same quality video at a lower bit rate.

- Profile: There are 4 pre-programmed stream profiles available for quick set-up. Choose the form of video encoding you wish to use from the drop-down list:

*** H.264 MP (Main Profile):** Primary profile for low-cost applications that require additional error robustness, this profile is used rarely in videoconferencing and mobile applications; it does add additional error resilience tools to the Constrained Baseline Profile. The importance of this profile is fading after the Constrained Baseline Profile has been defined.

*** H.264 BP (Baseline Profile):** Originally intended as the mainstream consumer profile for broadcast and storage applications, the importance of this profile faded when the High Profile was developed for those applications.

*** MPEG4 ASP(Advanced Simple Profile):** Its notable technical features relative to the Simple Profile, which is roughly similar to H.263, including "MPEG"-style quantization, interlaced video, B pictures (also known as B Frames), Quarter Pixel motion compensation (Qpel), Global motion compensation (GMC).

*** MPEG4 SP (Simple Profile):** The profile is mostly aimed for use in situations where low bit rate and low resolution are mandated by other conditions of the applications, like network bandwidth, device size etc.

- Resolution: This enables users to determine a basic screen size when having an access through the Web Browser or PC program. The screen size control comes in seven modes like 4CIF (704x576 (480)), 2CIF (704x288 (240)), CIF (352x288 (240)), VGA (640x480), QVGA (320x240) and QQVGA (160x120). Users can reset the selected screen size anytime while monitoring the screen on a real-time basis.

- **Bitrate control:** Limiting the maximum bit rate helps control the bandwidth used by the H.264 or MPEG-4 video stream. Leaving the Maximum bit rate as unlimited maintains consistently good image quality but increases bandwidth usage when there is more activity in the image. Limiting the bit rate to a defined value prevents excessive bandwidth usage, but images are lost when the limit is exceeded.

  Note that the maximum bit rate can be used for both variable and constant bit rates.

  The bit rate can be set as Variable Bit Rate (VBR) or Constant Bit Rate (CBR). VBR adjusts the bit rate according to the image complexity, using up bandwidth for increased activity in the image, and less for lower activity in the monitored area.

  CBR allows you to set a fixed target bitrate that consumes a predictable amount of bandwidth. As the bit rate would usually need to increase for increased image activity, but in this case cannot, the frame rate and image quality are affected negatively. To partly compensate for this, it is possible to prioritize either the frame rate or the image quality whenever the bit rate needs to be increased. Not setting a priority means the frame rate and image quality are equally affected.

- **Bitrate:** When it is necessary to adjust a smooth transmission status according to network situations, users can increase the compressibility to carry out the network transmission stably. On the other hand, when it is necessary to maintain a detailed monitoring screen by enhancing the image quality, users can do so by decreasing the compressibility. In each case, please adjust this function according to the network status and monitoring purposes. The default is 2000(Kbps).

- **Frame rate:** Upon the real-time play, users should select a frame refresh rate per second. If the rate is high, the image will become smooth. On the other hand, if the rate is low, the image will not be natural but it can reduce a network load.

- **GOP size:** Select the GOP (Group of Picture) size. If users want to have a high quality of fast image one by one, please decrease the value. For the purpose of general monitoring, please do not change a basic value. Such act may cause a problem to the system performance. For the details of GOP setting, please contact the service center.

• **Stream2 Setting:** Sometimes the image size is large due to low light or complex scenery. Adjusting the frame rate and quality helps to control the bandwidth and storage used by the Motion JPEG video stream in these situations. Limiting the frame rate and quality optimizes bandwidth and storage usage, but may give poor image quality. To prevent increased bandwidth and storage usage, the Resolution, Frame rate, and Frame Quality should be set to an optimal value.

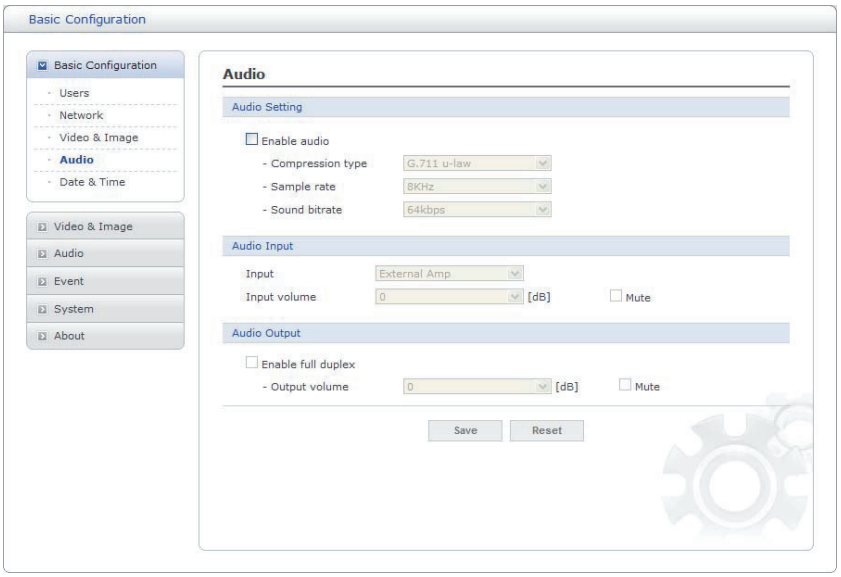
- **MJPEG resolution:** Same as the stream1 settings.

- **MJPEG frame rate:** Same as the stream1 settings.

- **MJPEG quality:** Select the picture quality. If users want to have a high quality of fast image one by one, please decrease the value. For the purpose of general monitoring, please do not change a basic value. Such act may cause a problem to the system performance.

When satisfied with the settings, click **Save**, or click **Reset** to revert to previously saved settings.

4) Audio



The network camera can transmit audio to other clients using an external microphone and can play audio received from other clients by attaching a speaker. The Setup page has an additional menu item called **Audio**, which allows different audio configurations, such as full duplex, and simplex.

• Audio Setting:

- Enable audio: Check the box to enable audio in the video stream.

- Compression type: Select the desired audio Compression format, G.711.

- Sample rate: Select the required Sample rate (number of times per second the sound is sampled). The higher the sample rate, the better the audio quality and the greater the bandwidth required.

- Sound bitrate: Depending on the selected encoding, set the desired audio quality (bitrate). The settings affect the available bandwidth and the required audio quality.

• Audio Input:

Audio from an external line source can be connected to the RCA Jack I/O of the network camera.

- Input volume: If there are problems with the sound input being too low or high, it is possible to adjust the input gain for the microphone attached to the network camera.

• Audio Output:

- Enable full duplex: Check the box to enable Full Duplex mode. This means that you can transmit and receive audio (talk and listen) at the same time, without having to use any of the controls. This is just like having a telephone conversation.

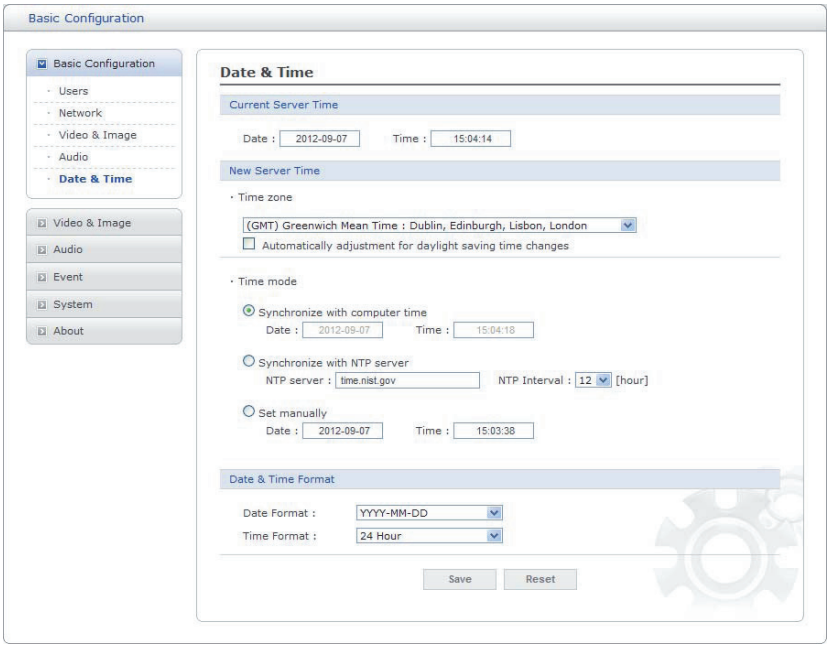
This mode requires that the client PC has a sound card with support for full-duplex audio.

Uncheck the box enable Simplex mode. The simplex mode only transmits audio from the network camera to any web client. It does not receive audio from other web clients.

- **Output volume:** If the sound from the speaker is too low or high it is possible to adjust the output gain for the active speaker attached to the network camera.

When satisfied with the settings, click **Save**, or click **Reset** to revert to previously saved settings.

5) Date & Time



- **Current Server Time:**

  This displays the current date and time (24h clock). The time can be displayed in 12h clock format in the overlay (see below).

- **New Server Time:**

  Select your time zone from the drop-down list. If you want the server clock to automatically adjust for daylight saving time, select “Automatically adjustment for daylight saving time changes”.

  From the **Time Mode** section, select the preferred method to use for setting the time:

  - Synchronize with computer time: sets the time from the clock on your computer.

  - Synchronize with NTP Server: the video encoder will obtain the time from an NTP server every 60 minutes.

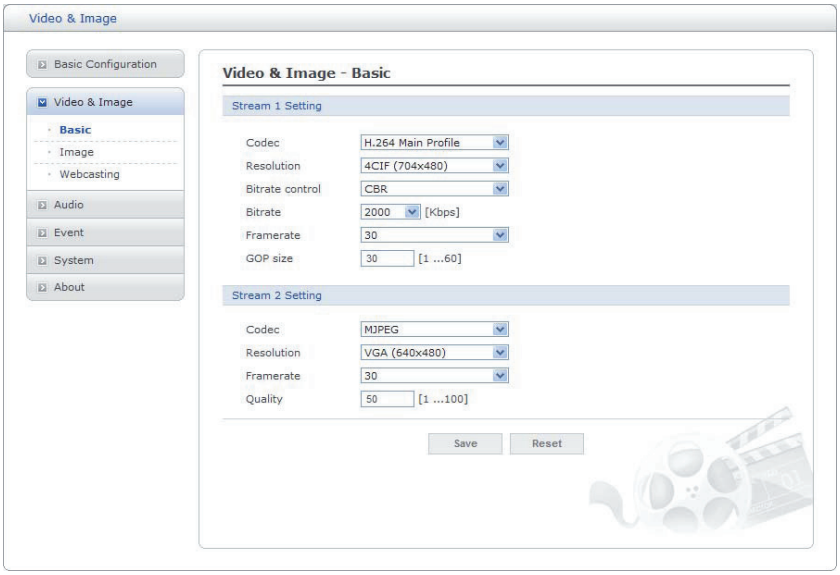
  - Set manually: this option allows you to manually set the time and date.

- **Data & Time Format:**

  Select Date and Time format.

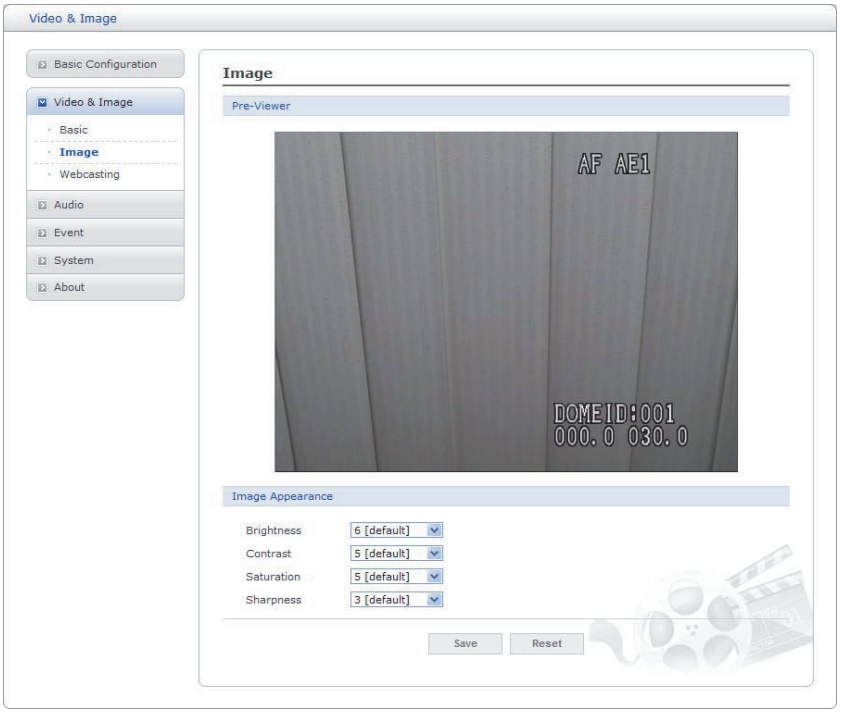
4.5.2 Video & Image

1) Basic



Refer to “4.5.1 Basic Configuration > 3) Video & Image” for more details.

2) Image



This page provides access to the advanced image settings for the network camera.

- **Brightness:** The image brightness can be adjusted in the range 1-10, where a higher value produces a brighter image.

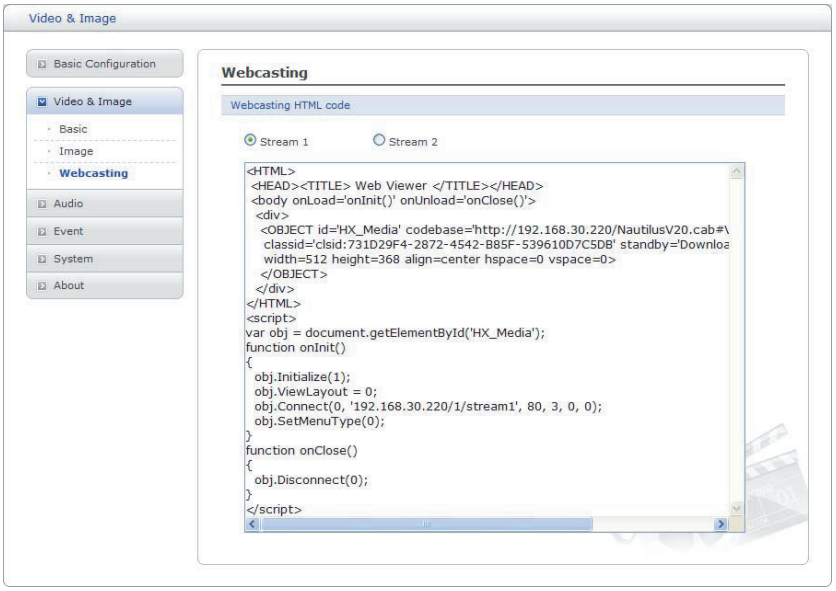
- **Contrast:** Adjust the image's contrast by raising or lowering the value in this field.

- **Saturation:** Select an appropriate level by entering a value in the range 1-10. Lower values mean less color saturation.

- **Sharpness:** Controls the amount of sharpening applied to the image. A sharper image might increase image noise especially in low light conditions. A lower setting reduces image noise, but the image would be less sharp.

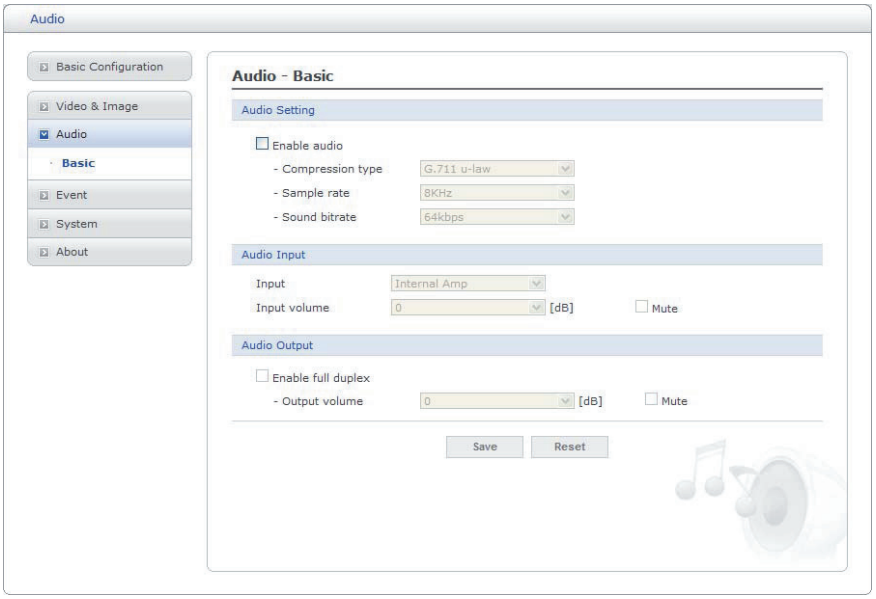
3) Webcasting

The network camera can stream live video to a website. Copies the HTML code generated on the screen and pastes it in page code of the website you want to display live video.



Note: To use webcasting service, the Enable Anonymous viewer login option must be checked. Refer to “4.5.1 Basic Configuration > 1) Users” for more details.

4.5.3 Audio

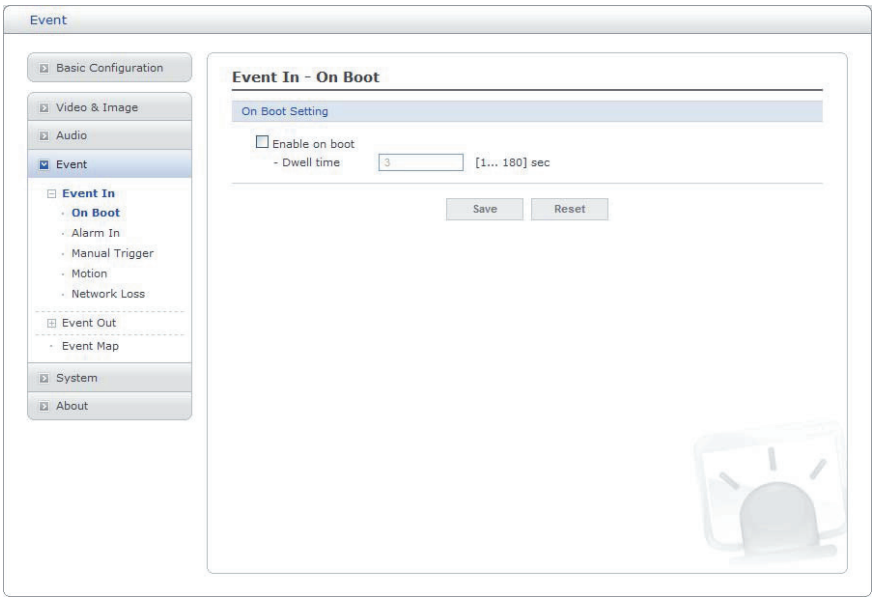


Refer to “4.5.1 Basic Configuration > 4) Audio” for more details.

4.5.4 Event

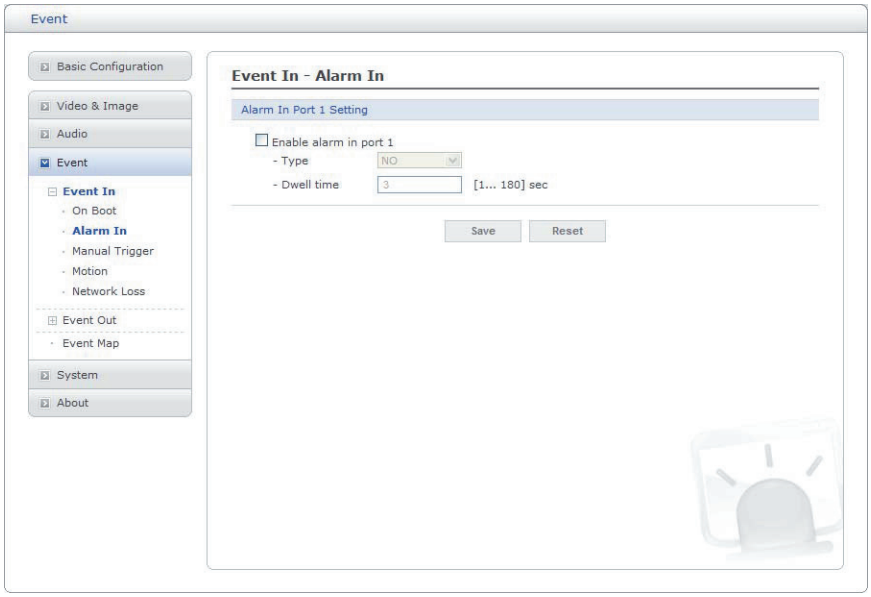
1) Event-In

① On Boot



This is used to trigger the event every time the Network Transmitter is started. Select “Enable” to activate the motion event.

② Alarm In

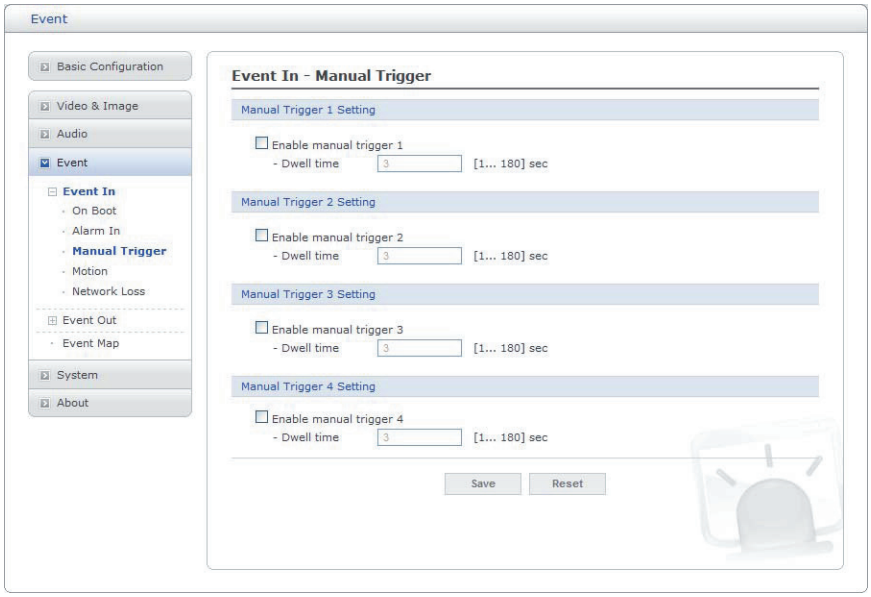


Select “Enable” to activate the alarm event. The network camera supports 1 alarm input port.

- Type: Choose the type of alarm you wish to use from the drop-down list.

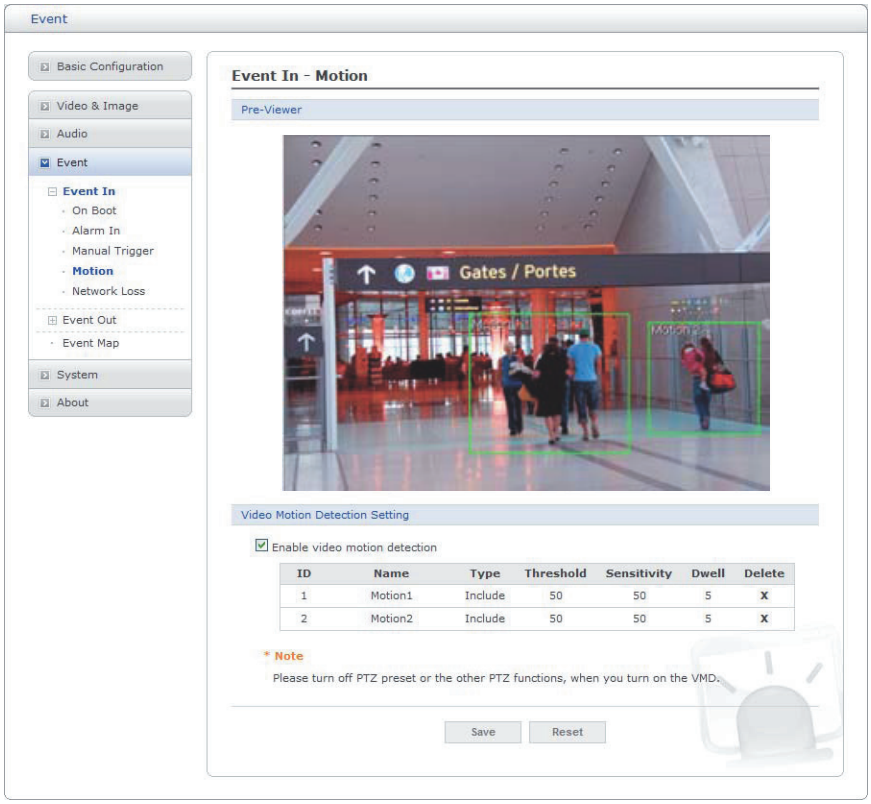
- Dwell Time: Set the dwell time an event lasts for the specified dwell time from the point of detection of an alarm input.

③ Manual Trigger



This option makes use of the manual trigger button provided on the Live View page, which is used to start or stop the event type manually. Alternatively, the event can be triggered via the product's API (Application Programming Interface).

④ Motion



Motion detection is used to generate an alarm whenever movement occurs (or stops) in the video image. A total of 8 Motion and/or Mask windows can be created and configured.

Motion is detected in defined **Motion** windows, which are placed in the video image to target specific areas. Movement in the areas outside the motion windows will be ignored. If part of a motion window needs to be masked, this can be configured in a **Mask** window.

- **Pre-Viewer:**

  Motion detection windows are configured by Motion or Mask windows. Each window can be selected by clicking with the mouse. It is also possible to **resize, delete** or **move** the window, by selecting the appropriate window at the mouse menu on the video screen.

To create a motion or mask window, follow these steps:

1. Click the right button of mouse to see the mouse menu.
2. Select New Motion (or New Mask) from the mouse menu.
3. Click and drag mouse to designate a motion area.

• Motion Detection Setting:

The behavior for each window is defined by adjusting the Threshold and Sensitivity, as described below.

A motion index is a set of parameters describing Window Name, Type, Threshold, Sensitivity, and Dwell Time. Window Types is one of Motion and Mask windows.

- Threshold: Sets up the threshold for the motion detection.

- Sensitivity: Sets up the sensitivity for the motion detection.

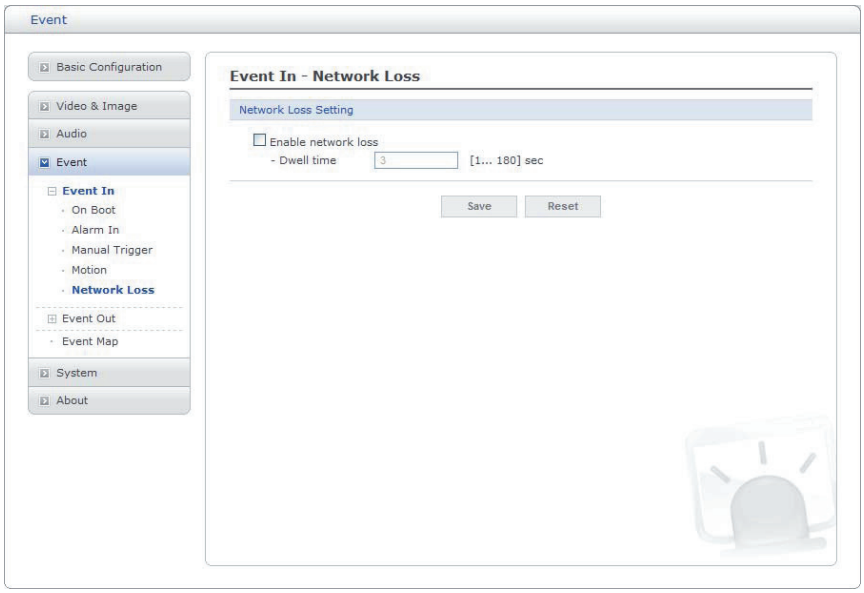
- Dwell Time: Sets the hold time an event lasts for the specified hold time from the point of detection of a motion.

You can also modify or delete a motion index. Select an index and then, click the Modify or Delete button.

Select “Enable” to activate the motion window.

Note: Motion event could occur by the movement of manual control & function operation.

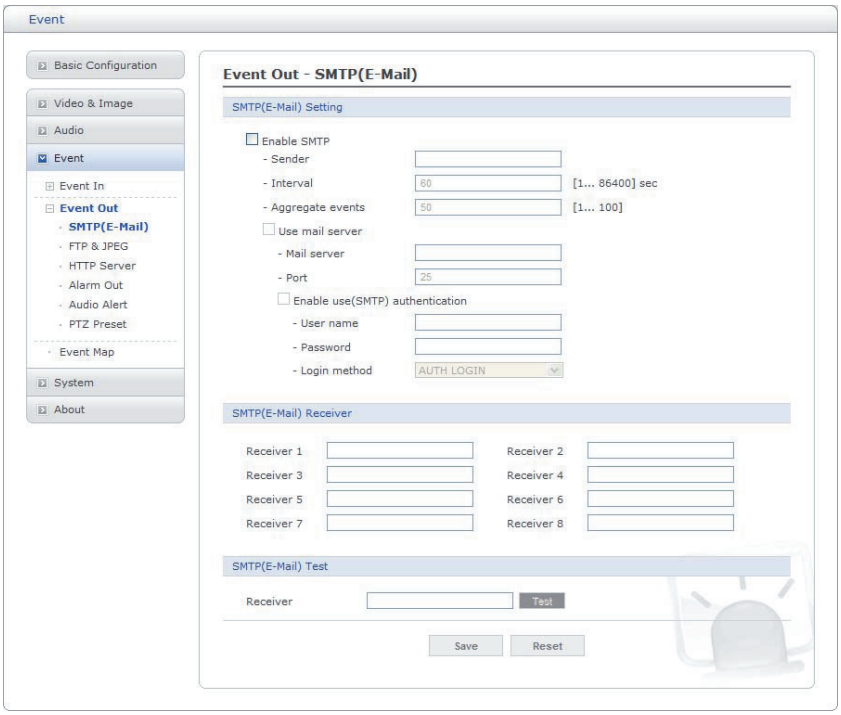
⑤ Network Loss



This is used to trigger the event every time the network connection fails.
Select “Enable” to activate the Network Loss event.

2) Event-Out

① SMTP (E-Mail)



The network camera can be configured to send event and error email messages via SMTP (Simple Mail Transfer Protocol).

• **SMTP (E-Mail) Setting:** Select “Enable” to activate the SMTP operation.

- **Mail Server/Port:** Enter the host names (or IP addresses) and port numbers for your mail server in the fields provided to enable the sending of notifications and image email messages from the camera to predefined addresses via SMTP.

- **Sender:** Enter the email address to be used as the sender for all messages sent by the Network Transmitter.

- **Interval:** Represents the frequency of the email notification when an event occurs.

- **Aggregate events:** Shows the maximum number of emails sent within each interval.

If your mail server requires authentication, check the box for use (SMTP) authentication to log in to this server and enter the necessary information.

- **User name/Password:** Enter the User name and Password as provided by your network administrator or ISP (Internet Service Provider).

To ensure that the login procedure is performed as securely as possible when using SMTP authentication, you must define the weakest authentication method allowed.

- **Login method:** Set the Weakest method allowed to the highest/safest method supported by the mail server. The most secure method is listed in the drop-down list:

  - **AUTH LOGIN/AUTH PLAIN**

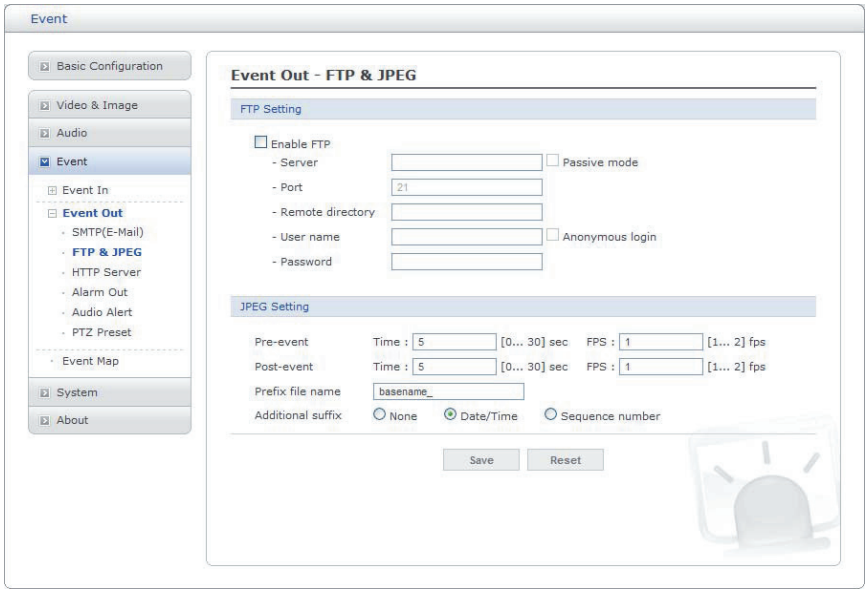
• **SMTP (E-Mail) Receiver:**

- **Receiver:** Enter an email address. You can also register the e-mail address of up to 8 recipients.

• **SMTP (E-Mail) Test:**

- **Receiver:** Enter an email address and click the Test button to test that the mail servers are functioning and that the email address is valid.

② FTP & JPEG



When the network camera detects an event, it can record and save images to an FTP server. Images can be sent as e-mail attachments. Check the box to enable the service.

• **FTP Setting:**

- **Server:** Enter the server's IP address or host name. Note that a DNS server must be specified in the TCP/IP network settings if using a host name.

- **Port:** Enter the port number used by the FTP server. The default is 21.

- **Use passive mode:** Under normal circumstances the network camera simply requests the target FTP server to open the data connection. Checking this box issues a PASV command to the FTP server and establishes a passive FTP connection, whereby the network camera actively initiates both the FTP control and data connections to the target server. This is normally desirable if there is a firewall between the camera and the target FTP server.

- **Remote directory:** Specify the path to the directory where the uploaded images will be stored. If this directory does not already exist on the FTP server, there will be an error message when uploading.

- **User name/Password:** Provide your log-in information.

• **JPEG Setting:**

- **Pre-event:** A pre-event buffer contains images from the time immediately preceding the event trigger. These are stored internally in the server. This buffer can be very useful when checking to see what happened to cause the event trigger.

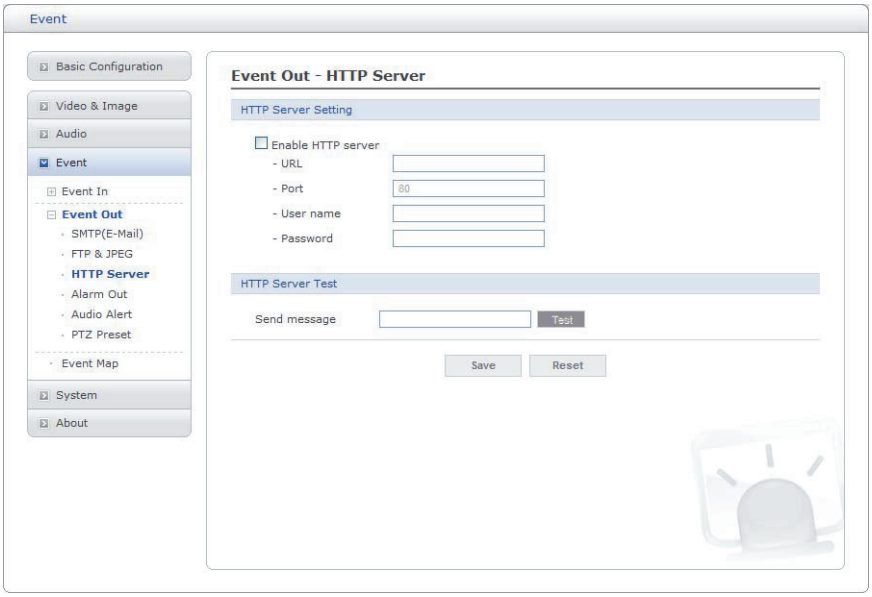
  Check the box to enable the pre-trigger buffer, enter the desired total length in seconds, minutes or hours, and specify the required image frequency.

- **Post-event:** This function is the counterpart to the pre-trigger buffer described above and contains images from the time immediately after the trigger. Configure as for pre-event.

- **Prefix file name:** This name will be used for all the image files saved. If suffixes are also used, the file name will take the form <prefix>,<suffix>,<extension>.

- **Additional suffix:** Add either a date/time suffix or a sequence number - with or without a maximum value.

③ HTTP Server



When the network camera detects an event, the HTTP Server is used to receive uploaded image files and/or notification messages. Check the box to enable the service.

• **HTTP Server Setting:**

- **Name:** The name of the HTTP event server. Use a descriptive name.

- **URL:** The network address to the server and the script that will handle the request.

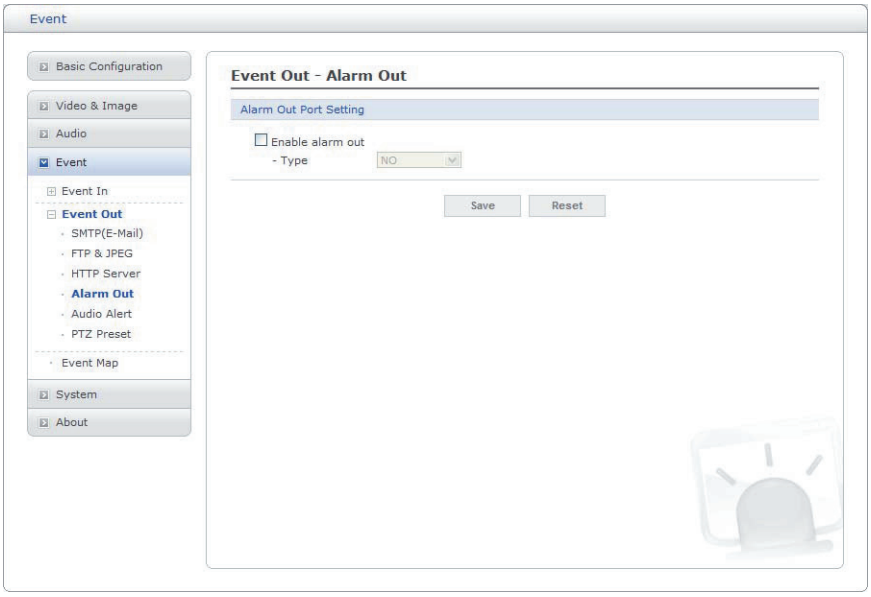
  For example: http://192.168.12.244/cgi-bin/upload.cgi

- **User name/Password:** Provide your log-in information.

• **HTTP Server Test:**

When the setup is complete, the connection can be tested by clicking the Test button.

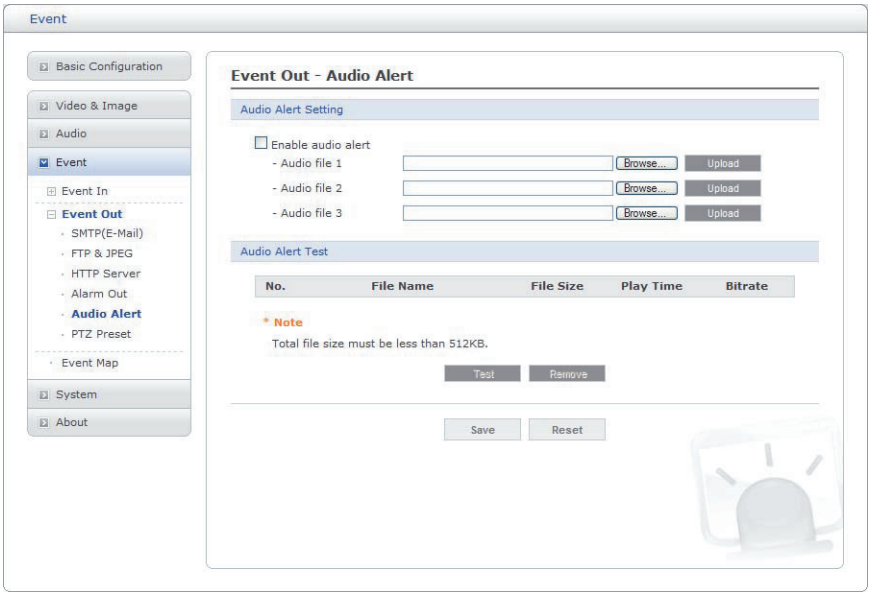
④ Alarm Out



When the network camera detects an event, it can control external equipment connected to its alarm output port. Check the box to enable and then select Type from the drop-down list:

- **Enable:** When you select "**Enable alarm out**", the output will be activated for as long as the event is active.

⑤ Audio Alert



When the network camera detects an event, it can output predefined audio data to an external speaker. Check the box to enable the service.

• **Audio Alert Setting:**

To use the audio alert with the Network Camera, an audio data file made by the user must be uploaded from your PC. Provide the path to the file directly, or use the Browse button to locate it. Then click the Upload button.

An audio file for Audio Alert can be made by Audio Recorder tool in the SVMS software.

• **Audio Alert Test:**

When the setup is complete, the audio output can be tested by clicking the Test button.

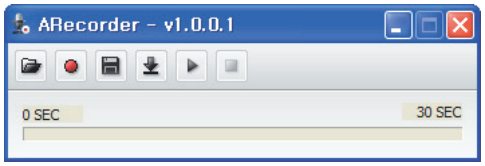
To remove an audio file, select index and click the Remove button.

Note: For the proper operation of Audio Alert, you must enable “full duplex” on the Audio setting page.

⑥ Audio Recorder

To use the Audio Recorder tool to make an audio file for the Audio Alert function, SVMS must first be installed from the installation CD.

After the SVMS program (Start > All Programs > SVMS > Tools > ARecorder) is installed in your PC, the ARecorder window will display as below.



The description of each button in the ARecorder window follows.

Open: Open an audio file.

Capture: Capture audio from the microphone in your PC.

Save: Save a captured file to your PC. (PCM format)

Encode: Encode a current capture file or opened PCM file to G.711 file for Audio Alert.

Play: Play a current audio file.

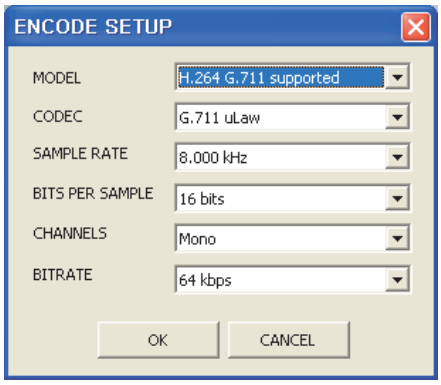
Stop: Stop playing audio.

Procedures to make an audio file in G.711 format for Audio Alert follow.

1. Connect the microphone in your PC.
2. Click the Capture button and talk into the microphone to record the audio or voice. You can record up to 30 seconds. Click the Stop button to stop capturing.
3. Click the Save button and then set the file name to save a current capture file with PCM format.

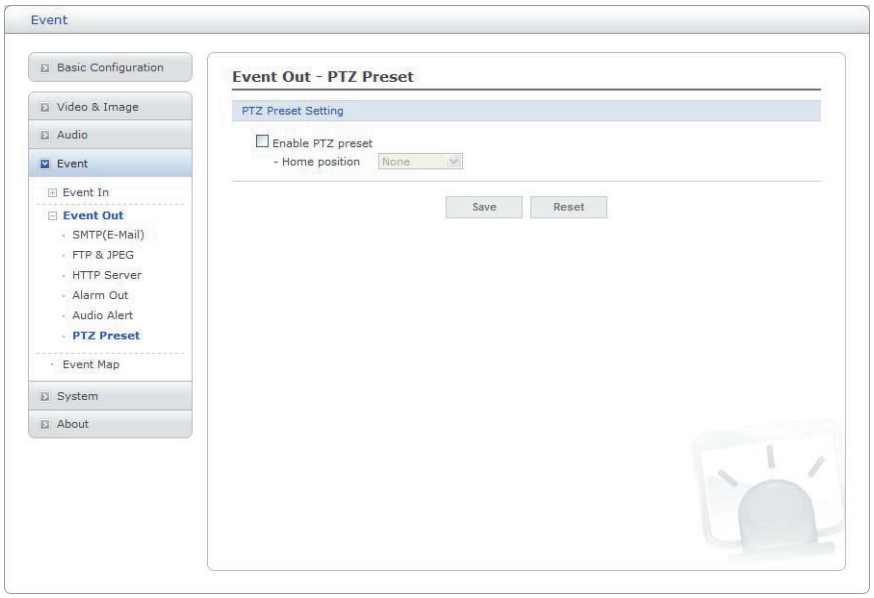
   If you don't need to make any PCM file, skip this step and go to the step 5 directly.
4. Click the Open button and then select the file name to open an audio file in PCM format.
5. Click the Encode button to encode a current audio file to G.711 format for Audio Alert.

Set the file name and encode parameters.



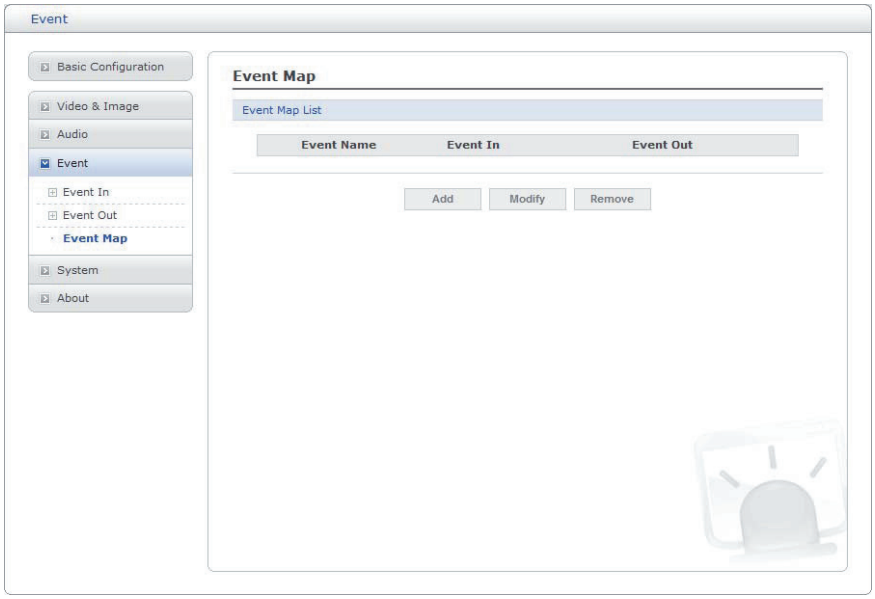
Caution: All parameters must be synchronized with the ones in Audio setting page of network devices for proper operation.

⑦ PTZ Preset



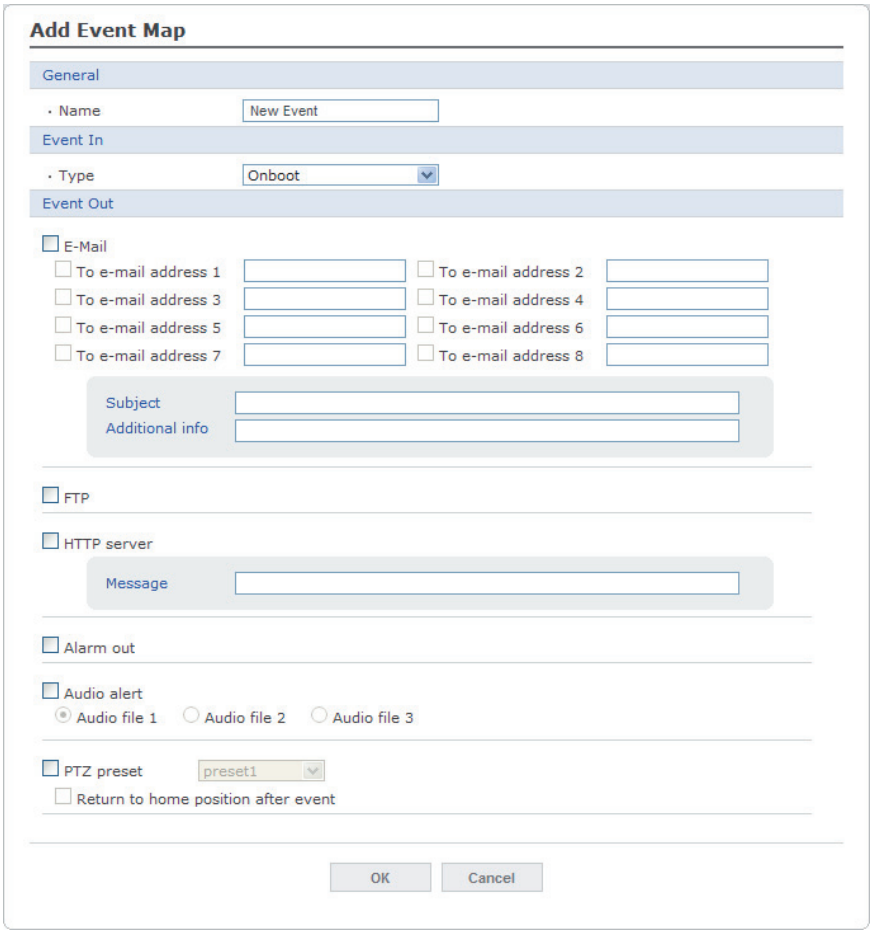
When the Network Transmitter detects an event, you can make a PTZ camera connected to its RS485 port move to a predefined preset position. Check the box to enable the service and return to the Home position once the event has ended.

3) Event Map



The event map allows you to change the settings and establish a schedule for each event trigger from the network camera. You can register the event map up to max. 15.

Click the Add button to make a new event map: a popup window display as below.



• **General:** Enter the name for a new event map.

• **Event In:** Select an event type in the drop-down list.

• **Event Out:**

- **E-mail:** Select the email addresses you want to notify via email that an event has occurred.

- **FTP:** Select checkbox beside FTP to record and save images to an FTP server when an event has occurred.

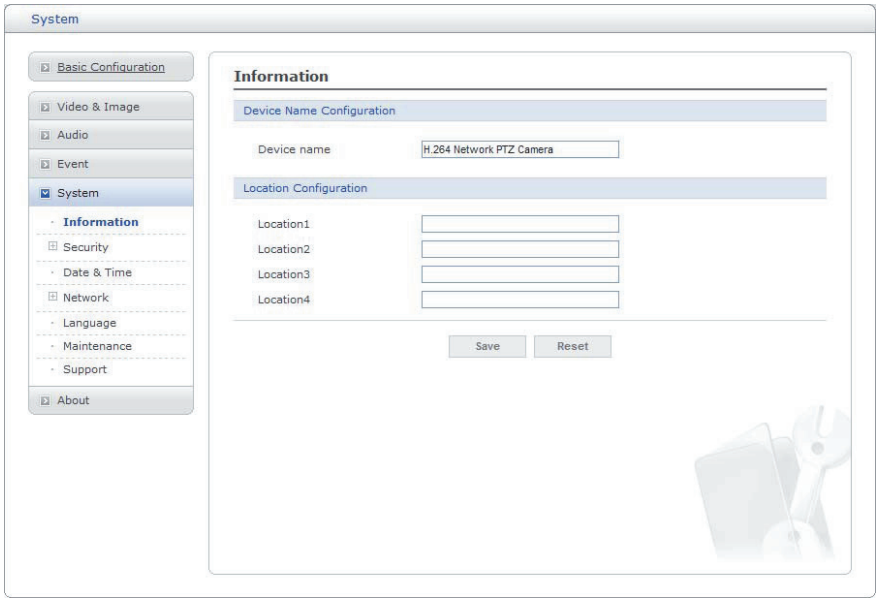
- **HTTP Server:** It sends notification messages to an HTTP server that listens for these. The destination server must first be configured on the Event In page. Enter a message you want to send.

- **Audio Alert:** Select an Audio Alert file as the Network Transmitter output when audio alert event triggered. The Audio Alert file must first be configured on the Event In page.

4.5.5 System

1) Information

You can enter the system information. This page is very useful when you require device information after installation.

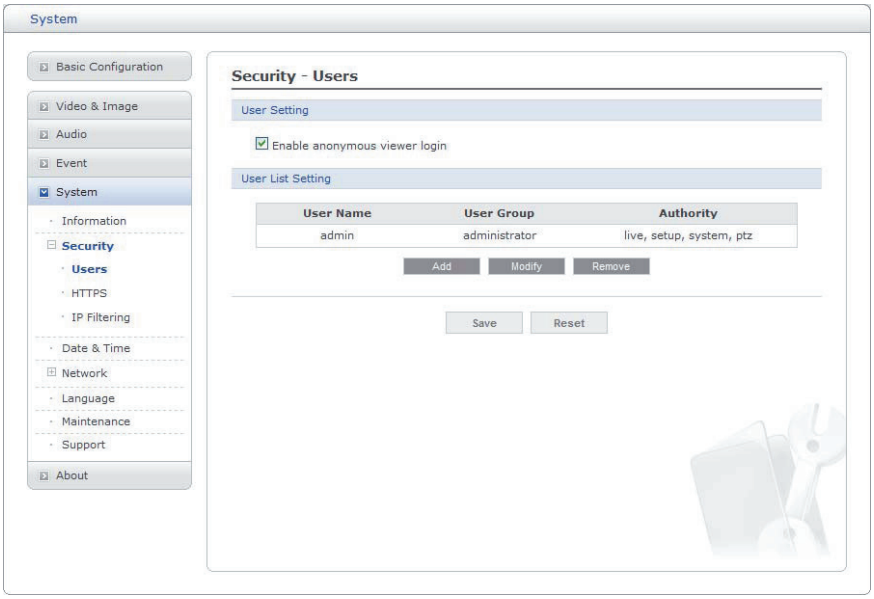


• **Device Name Configuration:** Enter the device name.

• **Location Configuration:** Enter the location information. You can enter up to four locations.

2) Security

① Users



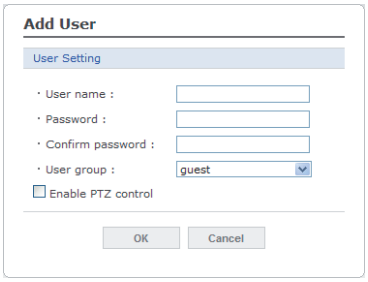
User access control is enabled by default when the administrator sets the root password on first access. New users are authorized with user names and passwords, or the administrator can choose to allow anonymous viewer login to the Live View page, as described below:

- **User Setting:**

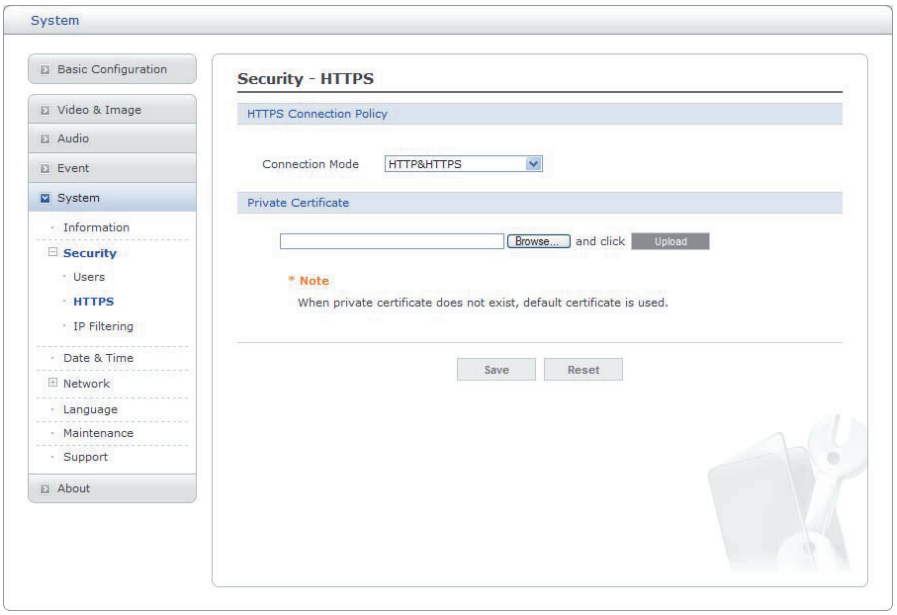
  Check the box to enable anonymous viewer login to the network camera without a user account. When using the user account, users have to log-in at every access.

- **User List Setting:**

  This section shows how to register a user account. Enter a user name and password to be added, and register them by pressing the Add button. You will see the pop-up window as below.



② HTTPS



For greater security, the network camera can be configured to use HTTPS (Hypertext Transfer Protocol over SSL (Secure Socket Layer)). Then all communication that would otherwise go via HTTP will instead go via an encrypted HTTPS connection.

• HTTPS Connection Policy:

Choose the form of connection you wish to use from the drop-down list for the administrator, Operator and Viewer to enable HTTPS connection (set to HTTP by default).

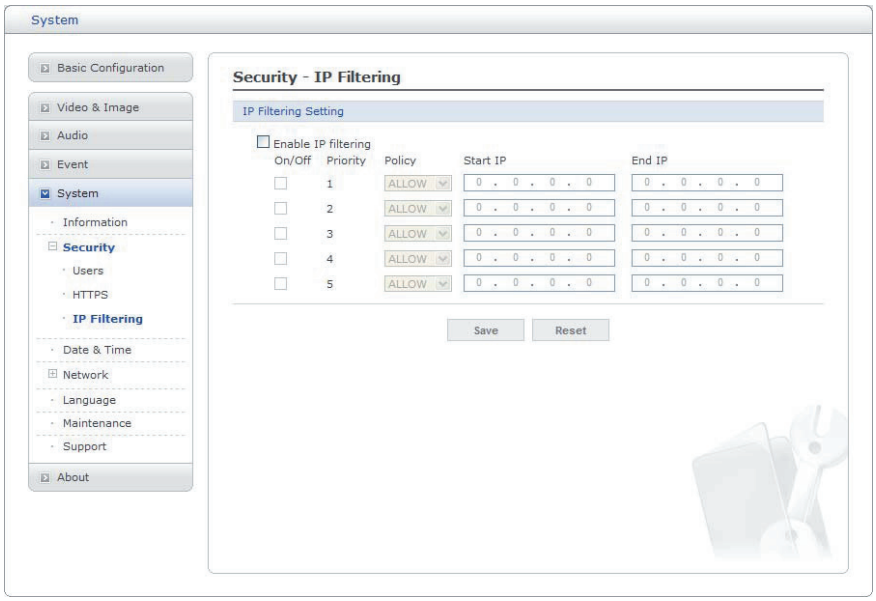
- HTTP
- HTTPS
- HTTP & HTTPS

• Upload Certificate:

To use HTTPS for communication with the network camera, an official certificate issued by a CA (Certificate Authority) must be uploaded from your PC. Provide the path to the certificate directly, or use the **Browse** button to locate it. Then click the **Upload** button.

Please refer to the home page of your preferred CA for information on where to send the request. For more information, please see the online help.

③ IP Filtering

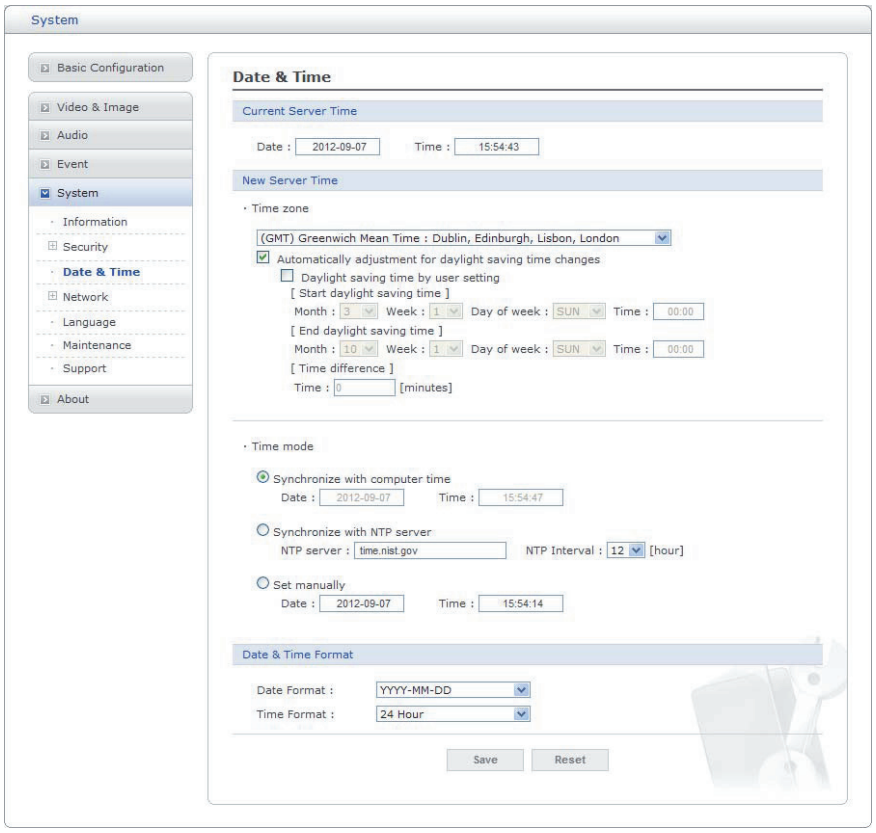


Checking the **Enable IP address filtering** box enables the IP address filtering function. Up to 256 IP address entries may be specified (a single entry can contain multiple IP addresses). Click the **Add** button to add new filtered addresses.

When the IP address filter is enabled, addresses added to the list are set as allowed **or** denied addresses. All other IP addresses not in this list will then be allowed or denied access accordingly, that is, if the addresses in the list are allowed, then all others are denied access, and vice versa. Also see the online help for more information.

Note that users from IP addresses that will be allowed must also be registered with the appropriate access rights. This is done from Setup > System > Security > Users, on “4.5.5 System > 2) Security > ① Users”.

3) Date & Time



- **Current Server Time:**

  This displays the current date and time (24h clock). The time can be displayed in 12h clock format in the overlay (see below).

- **New Server Time:**

  Select your time zone from the drop-down list. If you want the server clock to automatically adjust for daylight saving time, select “Automatically adjustment for daylight saving time changes”.

  From the Time Mode section, select the preferred method to use for setting the time:

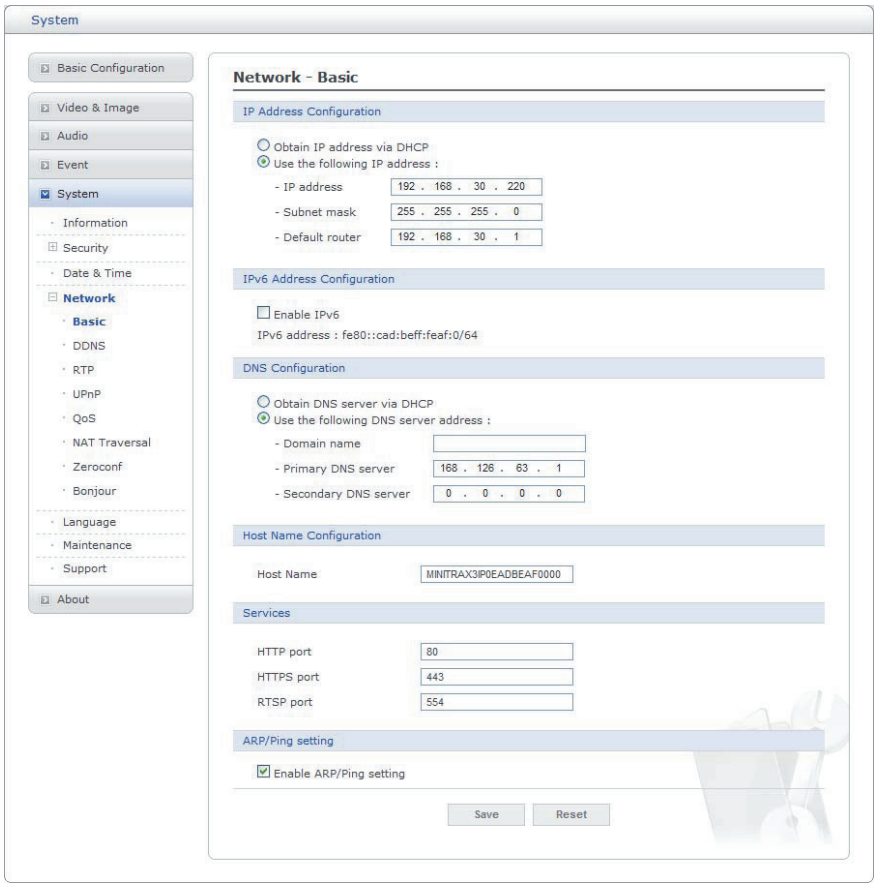
  - Synchronize with computer time: sets the time from the clock on your computer.

  - Synchronize with NTP Server: the video encoder will obtain the time from an NTP server every 60 minutes.

  - Set manually: this option allows you to manually set the time and date.

Note: If using a host name for the NTP server, a DNS server must be configured under TCP/IP settings.

4) Network



Settings in regard to network can be executed. Settings for IP, DNS, Host Name, Port, and ARP/Ping can be established, along with setting for DDNS, uPnP and QoS.

① Basic

• IP Address Configuration:

- Obtain IP address via DHCP: Dynamic Host Configuration Protocol (DHCP) is a protocol that lets network administrators centrally manage and automate the assignment of IP addresses on a network. DHCP is enabled by default. Although a DHCP server is mostly used to set an IP address dynamically, it is also possible to use it to set a static, known IP address for a particular MAC address.

- Use the following IP address: To use a static IP address for the network camera, check the radio button and then make the following settings:

* **IP address:** Specify a unique IP address for your network camera.

* **Subnet mask:** Specify the mask for the subnet the network camera is located on.

* **Default router:** Specify the IP address of the default router (gateway) used for connecting devices attached to different networks and network segments.

• IPv6 Address Configuration:

Check this box to enable IPv6. Other settings for IPv6 are configured in the network router.

• DNS Configuration:

DNS (Domain Name Service) provides the translation of host names to IP addresses on your network.

- Obtain DNS Server via DHCP: Automatically use the DNS server settings provided by the DHCP server. Click the View button to see the current settings.

- Use the following DNS server address to enter the desired DNS server by specifying the following:

*** Domain name:** enter the domain(s) to search for the host name used by the network camera. Multiple domains can be separated by semicolons (;). The host name is always the first part of a Fully Qualified Domain Name, for example, myserver is the host name in the Fully Qualified Domain Name myserver.mycompany.com where mycompany.com is the Domain name.

* **DNS servers:** enter the IP addresses of the primary and secondary DNS servers.

• Host Name Configuration:

- Host Name: enter the host name to be used as device information in the client software or SmartManager.

• Services:

- HTTP port:
Enter a port to receive a service through the HTTP. Default Port Number is ‘80’.

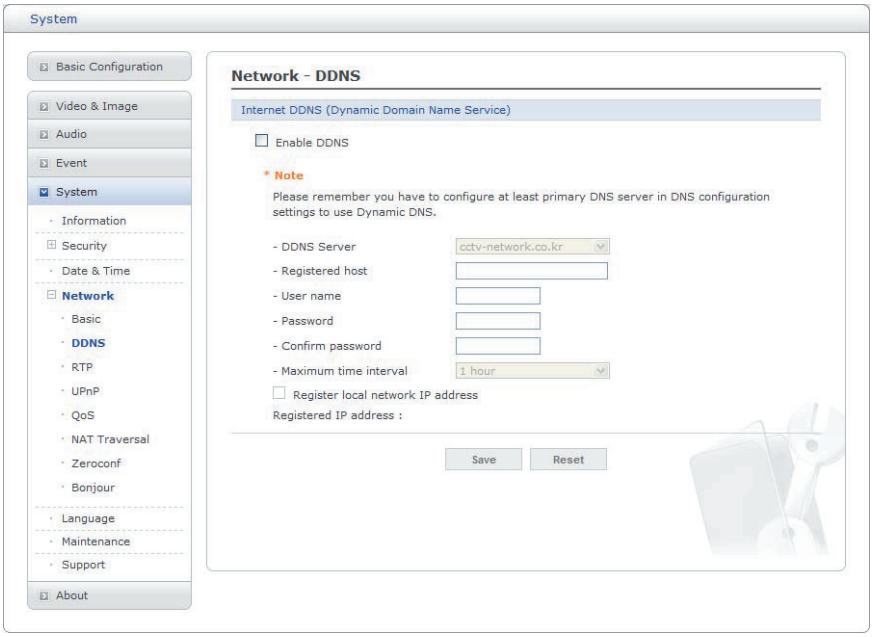
- RTSP port:
Enter a port to receive a service through the RTSP. Default Port Number is ‘7070’.

- PTZ port:
Enter a port to control the Pan/Tilt/Zoom. Default Port Number is ‘7000’.

• ARP/Ping Setting:

- Enable ARP/Ping setting of IP address: The IP address can be set using the ARP/Ping method, which associates the unit's MAC address with an IP address. Check this box to enable the service. Leave disabled to prevent unintentional resetting of the IP address.

② DDNS



• Internet DDNS (Dynamic Domain Name Service):

When using the high-speed Internet with the telephone or cable network, users can operate the network camera even on the floating IP environment in which IPs are changed at every access.

Users should receive an account and password by visiting a DDNS service like http://www.dyndns.com/ or http://www.cctv-network.co.kr/.

- Enable DDNS: Check to get DDNS service to be available.

*** DDNS Server:** Select the DDNS server.

*** Registered host:** Enter an address of the DDNS server.

*** User name:** Enter an ID to access the DDNS server.

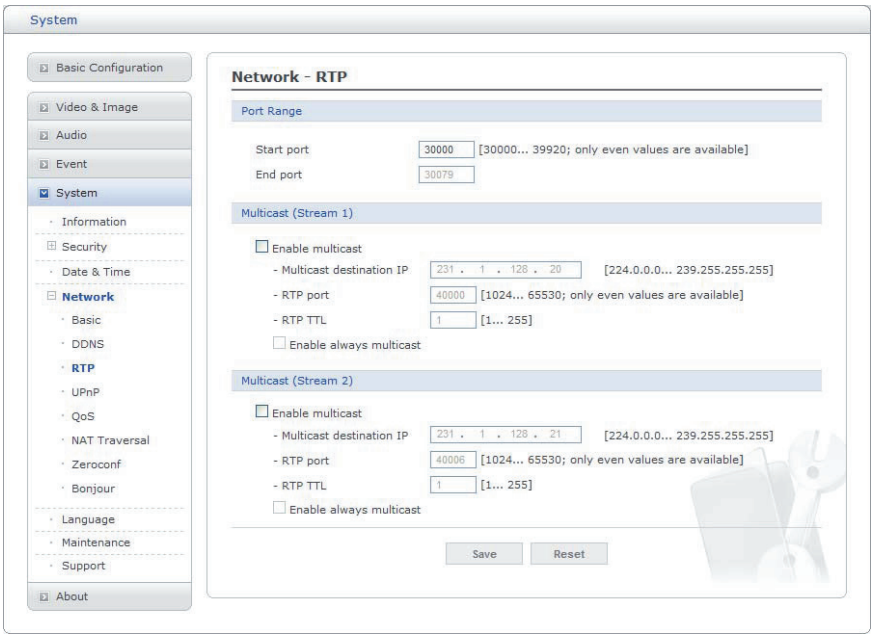
*** Password:** Enter a password to be used for accessing the DDNS server.

*** Confirm:** Enter the password again to confirm it.

*** Maximum time interval:** Set a time interval to synchronize with the DDNS server. Select an item in the interval drop-down list.

*** Register local network IP address:** Register a Network Video Server IP address to the DDNS server.

③ RTP



Users can configure settings for sending and receiving audio or video on a real-time basis. These settings are the IP address, port number, and Time-To-Live value to use for the media stream(s) in multicast H.264 format. Only certain IP addresses and port numbers should be used for multicast streams.

- **Port Range:**

  - Start port: Enter a value between 1024 and 65532.

- **Multicast:**

  This function is for sending Video and Audio to Multicast group.

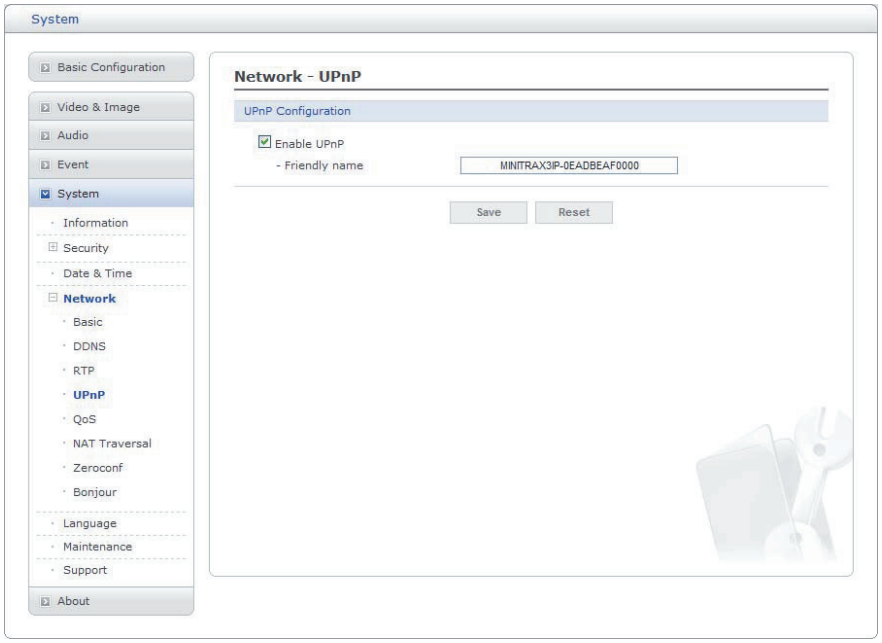
  - Enable Multicast: Check the box to enable multicast operation.

  - Multicast destination IP: Enter an IP between 224.0.0.0 and 239.255.255.255. Although it is empty, an IP will be entered automatically.

  - RTP port: Enter a value between 1024 and 65532.

  - RTP TTL: Enter a value between 1 and 255. If the network status is smooth, enter a lower value. On the other hand, if the network status is poor, enter a higher value. When there are many network cameras or users, a higher value may cause a heavy load to the network. For a detailed explanation, please consult with a network manager.

④ UPnP



The network camera includes support for UPnP™. UPnP is enabled by default, and the network camera then is then automatically detected by operating systems and clients that support this protocol.

Note: UPnP must be installed on your workstation if running Windows XP. To do this, open the Control Panel from the Start Menu and select Add/Remove Programs. Select Add/Remove Windows Components and open the Networking Services section. Click Details and then select UPnP™ as the service to add.

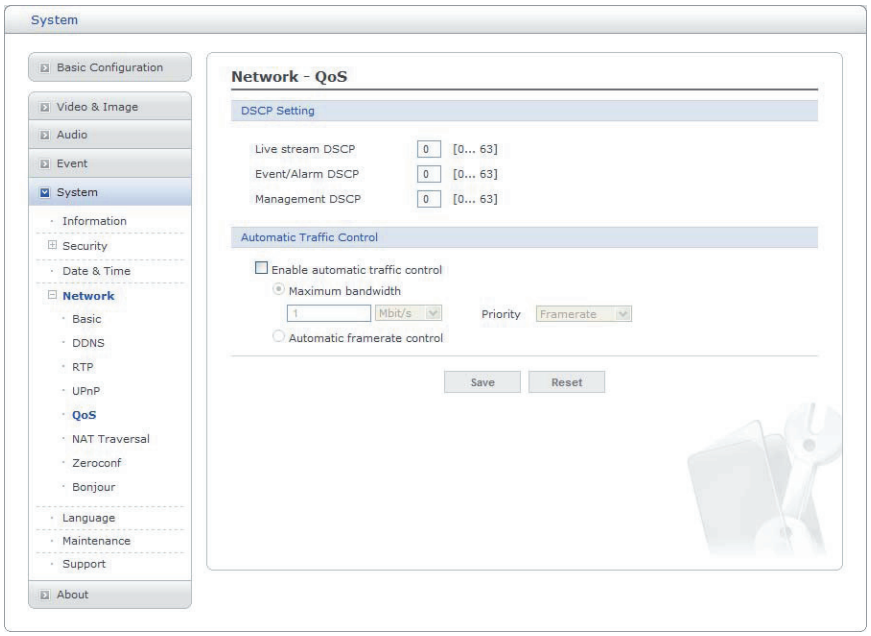
⑤ QoS

Quality of Service (QoS) provides the means to guarantee a certain level of a specified resource to selected traffic on a network. Quality can be defined as a maintained level of bandwidth, low latency, and no packet losses.

The main benefits of a QoS-aware network are:

- The ability to prioritize traffic and thus allow critical flows to be served before flows with lesser priority.

- Greater reliability in the network, because of the control of the amount of bandwidth an application may use, and thus control over bandwidth races between applications.



• DSCP Settings:

For each type of network traffic supported by your network video product, enter a DSCP (Differentiated Services Code Point) value. This value is used to mark the traffic's IP header. When the marked traffic reaches a network router or switch, the DSCP value in the IP header tells the router or switch which type of treatment to apply to this type of traffic, for example, how much bandwidth to reserve for it. Note that DSCP values can be entered in decimal or hex form, but saved values are always shown in decimal.

The following types of traffic are marked:

- Live Stream DSCP:
- Event/Alarm DSCP:
- Management DSCP:

• Auto Traffic Control:

Set a limitation on user network resources by designating the maximum bandwidth. Check to enable automatic traffic control.

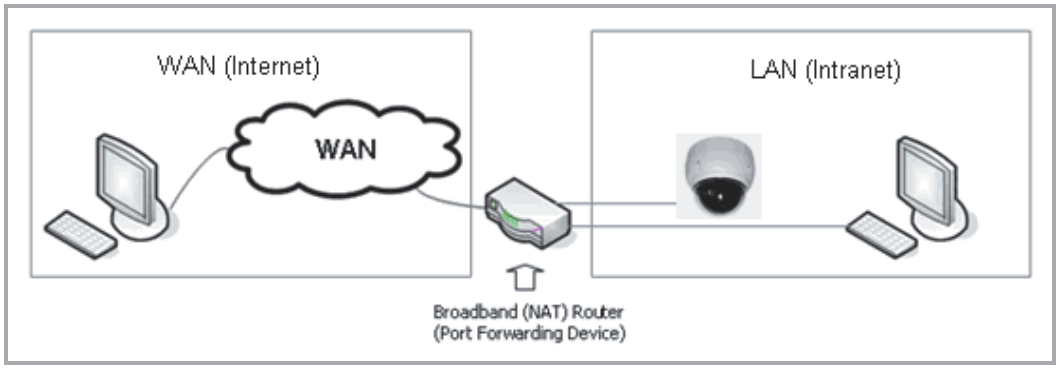
- Maximum bandwidth: In case of sharing other network programs or equipment, it is possible to set a limitation on the maximum bandwidth in the unit of Mbit/s or kbit/s.

- Auto frame rate: Selected if not influenced by a network-related program or equipment without a limitation on the network bandwidth.

⑥ NAT Traversal

A broadband router allows devices on a private network (LAN) to share a single connection to the Internet. This is done by forwarding network traffic from the private network to the “outside,” that is, the Internet. Security on the private network (LAN) is increased since most broadband routers are pre-configured to stop attempts to access the private network (LAN) from the public network/Internet.

Use **NAT Traversal** when your network cameras are located on an intranet (LAN) and you wish to make it available from the other (WAN) side of a NAT router. With NAT traversal properly configured, all HTTP traffic to an external HTTP port in the NAT router is forwarded to the network camera.

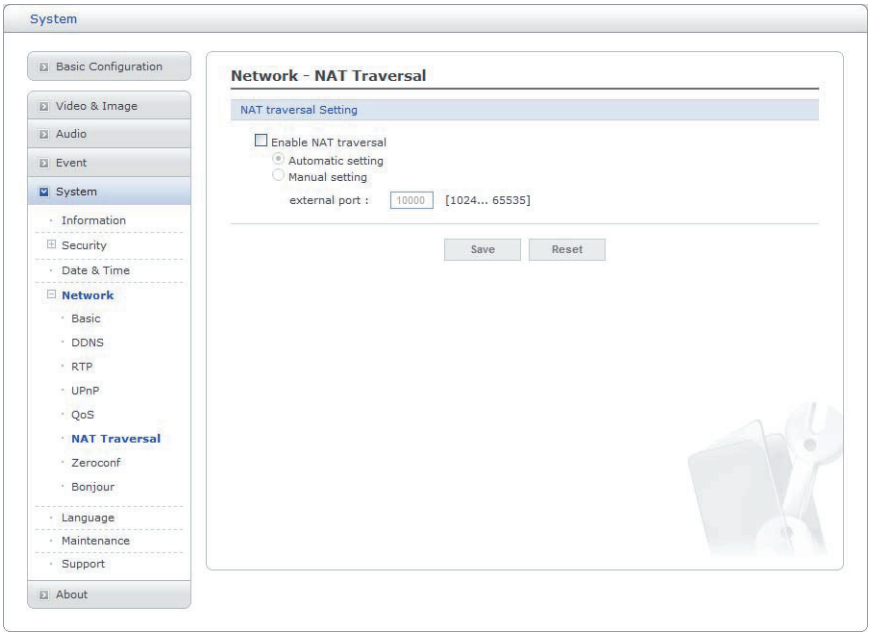


Notes:

- For NAT traversal to work, this must be supported by the broadband router.

- The broadband router is known by many different names:

  “NAT router,” “Network router,“ “Internet Gateway,” “Broadband sharing device” or “Home firewall” but the essential purpose of the device is the same.



• NAT traversal Settings:

- Enable: When enabled, the Network Transmitters attempt to configure port mapping in a NAT router on your network, using UPnP. Note that UPnP must be enabled in the network camera. (Please see Setup > System > Network > UPnP, on “4.5.5 System > 4) Network > ④ UPnP”.).

*** Automatic setting:** The network camera automatically searches for NAT routers on your network.

*** Manual setting:** Select this option to manually select a NAT router and enter the external port number for the router in the field provided.

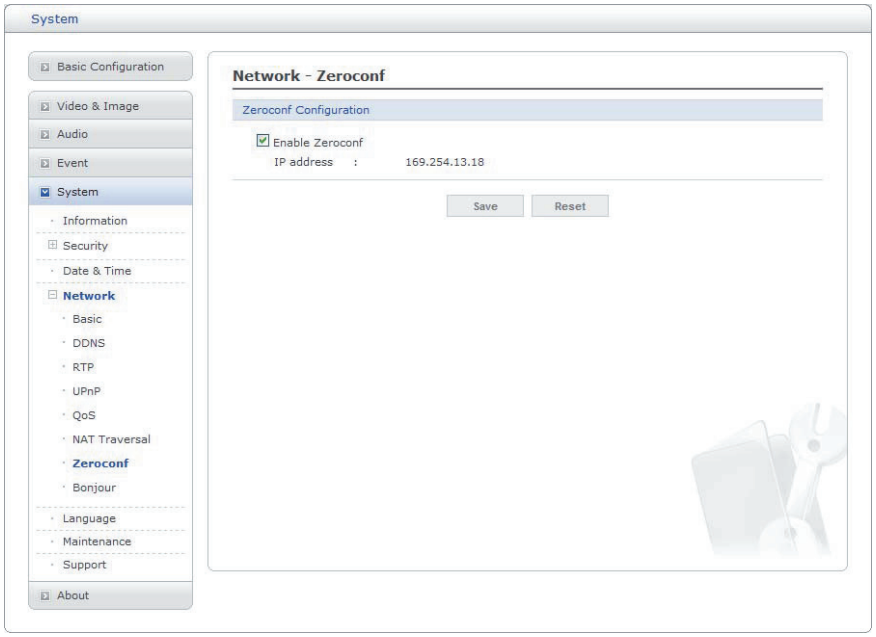
Notes:

- If you attempt to manually enter a port that is already in use, an alert message will be displayed.

- When the port is selected automatically it is displayed in this field. To change this enter a new port number and click Save.

⑦ Zeroconfig

Zeroconfig allows the network camera to create and assign the IP address for network cameras and connect to a network automatically.



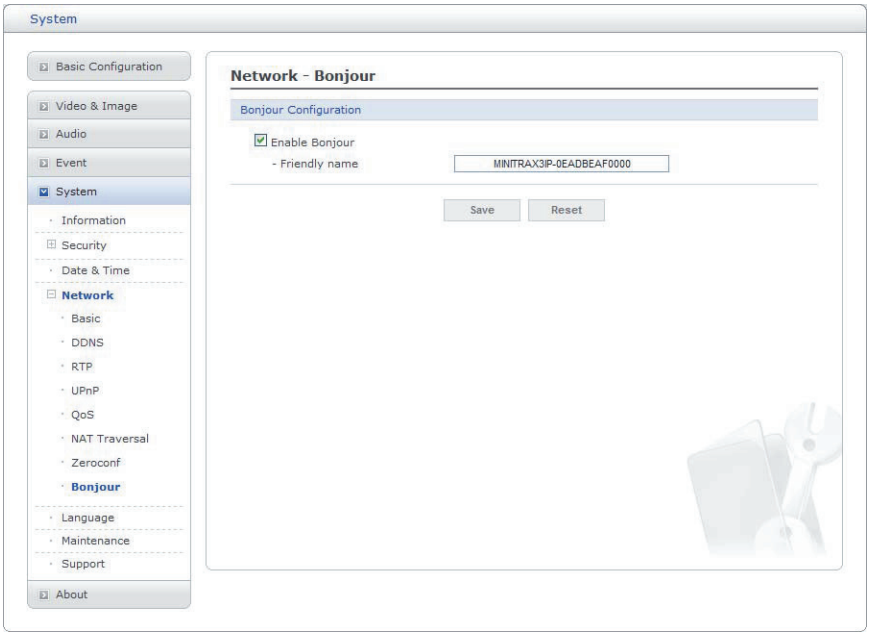
Zero configuration networking (zeroconf) is a set of techniques that automatically creates a usable Internet Protocol (IP) network without manual operator intervention or special configuration servers.

Zero configuration networking allows devices such as computers and printers to connect to a network automatically. Without zeroconf, a network administrator must set up services, such as Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS), or configure each computer's network settings manually, which may be difficult and time-consuming.

Zeroconf is built on three core technologies:

- Assignment of numeric network addresses for networked devices (link-local address auto configuration)
- Automatic resolution and distribution of computer hostnames (multicast DNS)
- Automatic location of network services, such as printing devices through DNS service discovery.

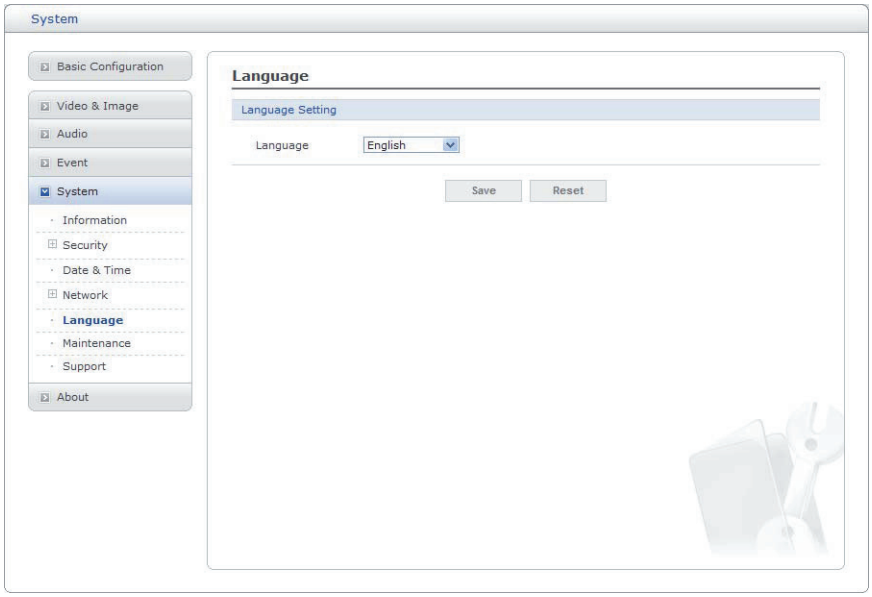
⑧ Bonjour



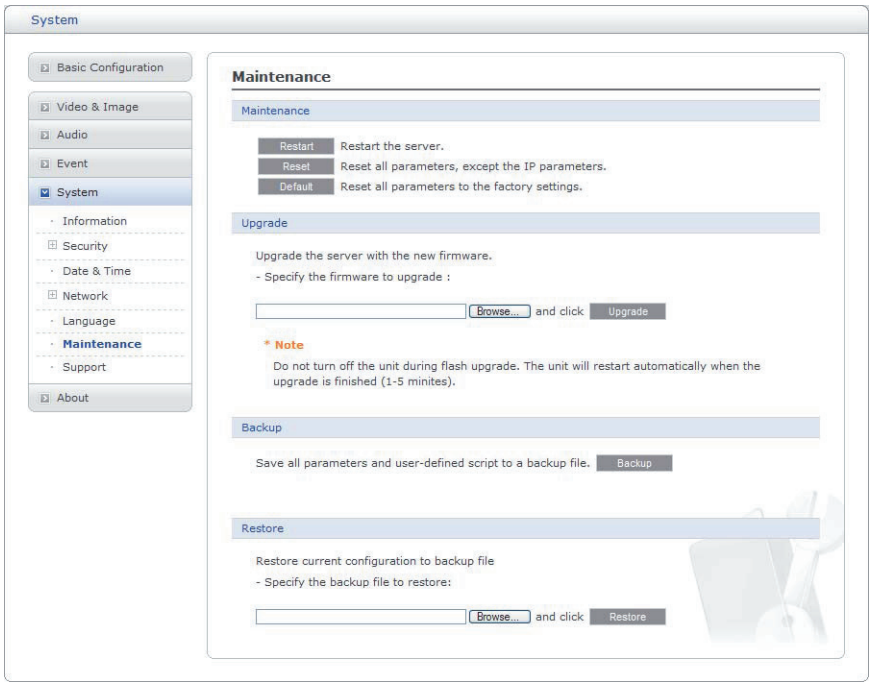
Note: Bonjour - Also known as zero-configuration networking, Bonjour enables devices to automatically discover each other on a network, without having to enter IP addresses or configure DNS servers. Bonjour is a trademark of Apple Computer, Inc.

5) Language

Select the desired language.



6) Maintenance



- **Maintenance Server:**

  - **Restart:** The unit is restarted without changing any of the settings. Use this method if the unit is not behaving as expected.

  - **Reset:** The unit is restarted and most current settings are reset to factory default values. The settings that are not affected are:

    *** the boot protocol (DHCP or static)**

*** the static IP address**

*** the default router**

*** the subnet mask**

*** the system time**

- Default: The default button should be used with caution. Pressing this will return all of the network camera's settings to the factory default values (including the IP address).

• **Update Server:** Upgrade your camera by importing an upgrade file and pressing the Upgrade button. During the upgrade, do not turn off the power of the network camera. Wait at least five minutes and then try to access the camera again.

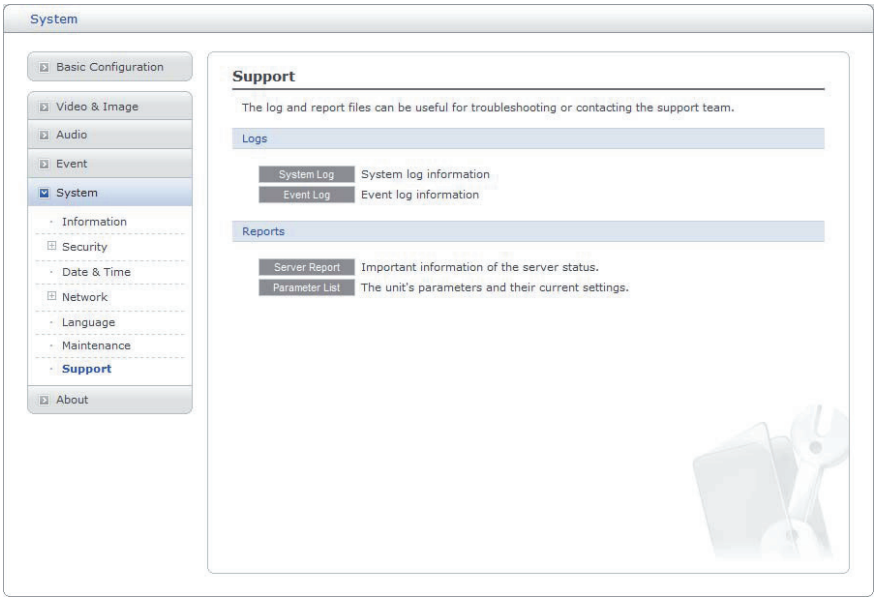
• **Backup:** Save the setting values that users have entered to the network camera to a user PC.

• **Restore:** Import and apply a setting value previously saved to a user PC.

Note: Backup and Restore can only be used on the same unit running the same firmware. This feature is not intended for multi-configurations or for firmware upgrades.

7) Support

The support page provides valuable information on troubleshooting and contact information, should you require technical assistance.



• **Logs:** The network camera supports system and event log information. Click the System Log button to get the system log data or the Event Log button to get information on events.

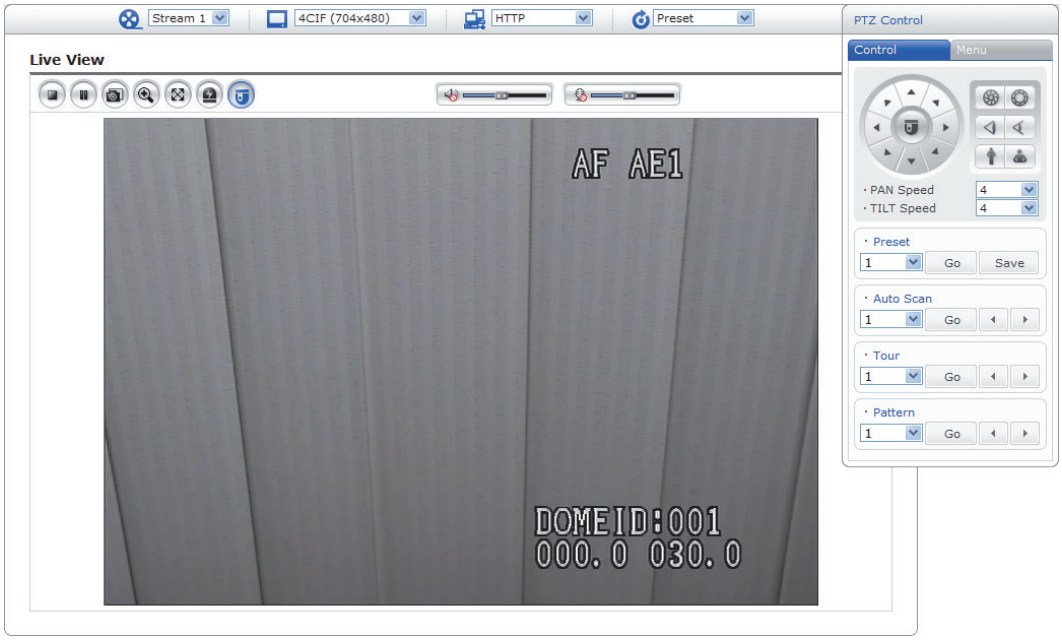
• **Reports:**

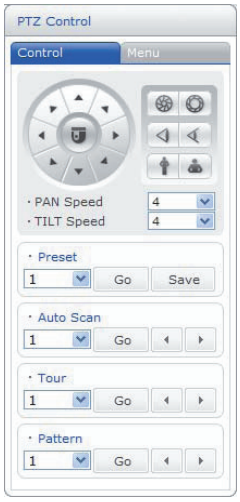
- Server Report: Click the Server Report button to get the important information about the server's status; this should always be included when requesting support.

- Parameter List: Click the Parameter List button to see the unit's parameters and their current settings.

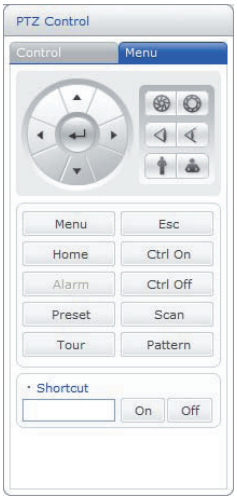
4.6 PTZ Control

You can control PTZ from the live screen. Press the button on the left top in the live screen to activate the PTZ control panel.





PTZ Control Panel



PTZ Menu Panel

Direction Buttons

Iris/Focus/Zoom Buttons

- **Control Panel:**

  - **Left/Right button:** Used to go into the sub-menu items. Execute the command (exit). Change value. Navigate through the menu items.

  - **Up/Down button:** Used to navigate through the menu items

  - **PAN/TILT Speed:** Sets the speed when adjusting the PTZ camera. The higher the value, the faster the speed

  - **Focus:** Pressing these overrides auto focus. Moving the Zoom handle reactivates Auto Focus mode.

- **Iris:** Pressing these overrides auto iris. Moving the joystick reactivates Auto Iris mode.

- **Zoom:** Pressing these activates Zoom control.

• **Menu Panel:**

- **Menu:** Enters programming menu.

- **Esc:** Cancels current inputs; exits from currently running functions or menu, error status, etc.

- **Home:** Immediately calls Home function; deletes selected value or function in programming mode.

- **Ctrl On/Off:** Control function.
  ex) CTRL + Up, Down, Right, Left Button > Operated turbo mode.

- **Preset:** Pressing the Preset will bring up the preset programming menu.

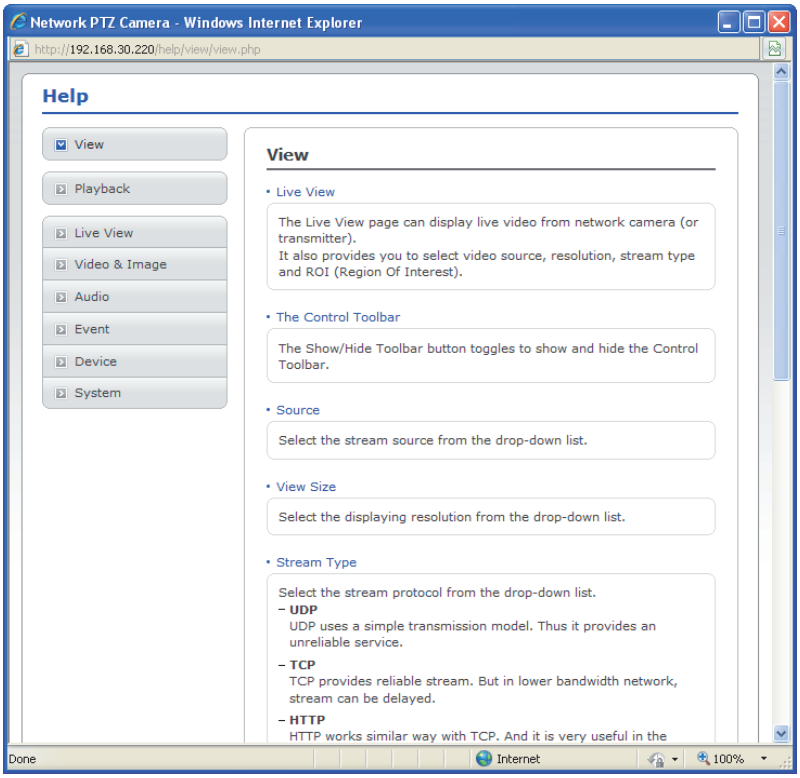
- **Auto Scan:** Pressing the Scan will bring up the Auto Scan programming menu.

- **Tour:** Pressing the Tour button will bring up the tour programming menu directly.

- **Pattern:** Pressing the Pattern button will bring up the pattern programming menu directly.

4.7 Help

The Help information window will be provided as a popup window so that users can open and read it without needing to log-in. It will offer a description of the setting and Help page so that users can manipulate the network camera without a reference to the manual.


Network PTZ Camera - Windows Internet Explorer
http://192.168.30.220/help/view/view.php
Help
View
Playback
Live View
Video & Image
Audio
Event
Device
System
View
• Live View
The Live View page can display live video from network camera (or transmitter).
It also provides you to select video source, resolution, stream type and ROI (Region Of Interest).
• The Control Toolbar
The Show/Hide Toolbar button toggles to show and hide the Control Toolbar.
• Source
Select the stream source from the drop-down list.
• View Size
Select the displaying resolution from the drop-down list.
• Stream Type
Select the stream protocol from the drop-down list.
– UDP
UDP uses a simple transmission model. Thus it provides an unreliable service.
– TCP
TCP provides reliable stream. But in lower bandwidth network, stream can be delayed.
– HTTP
HTTP works similar way with TCP. And it is very useful in the
Done
Internet
100%

4.8 Resetting to the factory default settings

To reset the network camera to the original factory settings, go to the Setup > System > Maintenance web page or use the control button on the network camera, as described below:

- **Using the Reset Button**

  Follow the instructions below to reset the network camera to the factory default settings using the Reset Button.

  1. Switch off the network camera by disconnecting the power adapter.
  2. Open the lens cover.
  3. Press and hold the Control Button (SW1) on the board with your finger while reconnecting the power.
  4. Keep the Control button (SW1) pressed for about 2 seconds.
  5. Release the Control Button (SW1).
  6. The network camera resets to factory defaults and restarts after completing the factory reset.
  7. Close the lens cover.

CAUTION: When performing a Factory Reset, you will lose any settings that have been saved.

4.9 System Requirement for Web Browser

Operating System: Microsoft Windows 98, Microsoft Windows ME, Microsoft Windows 2000, Microsoft Windows XP, or Microsoft Windows Vista

CPU: Over Pentium® IV 2.4GHz, 512MB RAM, 10GB free disk or higher

VGA: AGP, Video RAM 32MB or higher (1024x768, 24bpp or higher)

Appendix A — Specifications

MINITRAX3IP NETWORK DOME CAMERA

MODEL	22X
MODULE	
CCD Type	1/4" Type EXview HAD CCD
Optical / Digital Zoom	22X / 16X
Resolution	580 TVL
Focal Length	f = 3.9mm ~ 85.8mm
Angle of View	3.9mm – 49.5° (H) 85.8mm – 2.4° (H)
F-Number	F1.6 ~ F3.7
Min. Illumination	
- Normal	0.5 Lux
- ICR on & Slow Shutter	0.001 Lux
ICR on (Day & Night)	YES
WDR	YES
Motion Detection (in PRESET)	YES
DOME	
Tilt Angle	0° ~ 180° (Digital Flip)
Image Flip	YES
Auto Calibration	0.1° ~ 6°
Panning Angle	360 continuous rotation
Auto Scan	1 auto pan & 4 auto scans capability
Preset	120 presets with individual camera AE setup
Pattern	4 patterns (recording up to 200 sec.)
Tour	4 tours (consist of 42 functions / 1 tour)
Max Speed	380° /sec.
Area Title	Can be divided 8 areas with 12 characters per title
Privacy Zone	4 privacy zone masks (2 methods selectable : Block / Video off)
Electrical	
Power Source	12VDC ± 10%
Power Consumption	12W (1A)
Control	RS-485, baud rate: 2400 ~ 19.2k bps (default: 9600 bps)
ID (Camera Address)	1 ~ 255

* Specifications are subject to change without notice *

NETWORK	
Video Compression	Motion JPEG MPEG-4 Part2 H.264 (MPEG-4 Part 10) Profiles: H.264 (HP/MP/BP), MPEG-4 (SP)
Video Resolutions	320x240 ~ 704x480: NTSC 320x240 ~ 704x576: PAL
Frame Rate	Up to 30/25 fps (NTSC/PAL) @ all resolutions
Video Streaming	Simultaneously H.264 (or MPEG-4) and MJPEG Controllable Frame Rate and Bandwidth VBR/CBR H.264 and MPEG-4
Audio Compression	G.711 ADPCM 40kbps ~ 16kbps
Audio Streaming	2 Way
Protocol	TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, QoS, FTP, uPnP, RTP, RTSP, RTCP, DHCP, ARP, Zeroconf, Bonjour
Security	Multi-user authority, HTTPS, IP Filtering
Max. Connections	10
API Programming Interface	API Supported, Open Platform Compatible: Milestone, ONVIF
Alarm Triggers	Motion Detection, External Input, Manual Trigger
Alarm Events	File upload via FTP and HTTP Notification via E-mail, HTTP and TCP External Output activation Audio Alert activation
Video Buffering	Pre and Post Alarm
Motion Detection	Yes, max. 8 programmable zone
Network Time Synchronization	Yes
Software Reset	Yes
Factory Reset	Yes, Button/Web browser
Auto Recovery	Yes
Installation Tool	Yes, SmartManager/SVMS
Upgrade	Yes, Web browser/SmartManager/SVMS
Alarm	1 input, 1 output
Mechanical	
Dimension	See dimension
Weight	Approx. 1.6 kg
Environment	
Operating Temperature	0°C to 45°C (32°F to 113°F)
Operating Humidity	0 to 90%RH (non-condensing)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)

* Specifications are subject to change without notice *

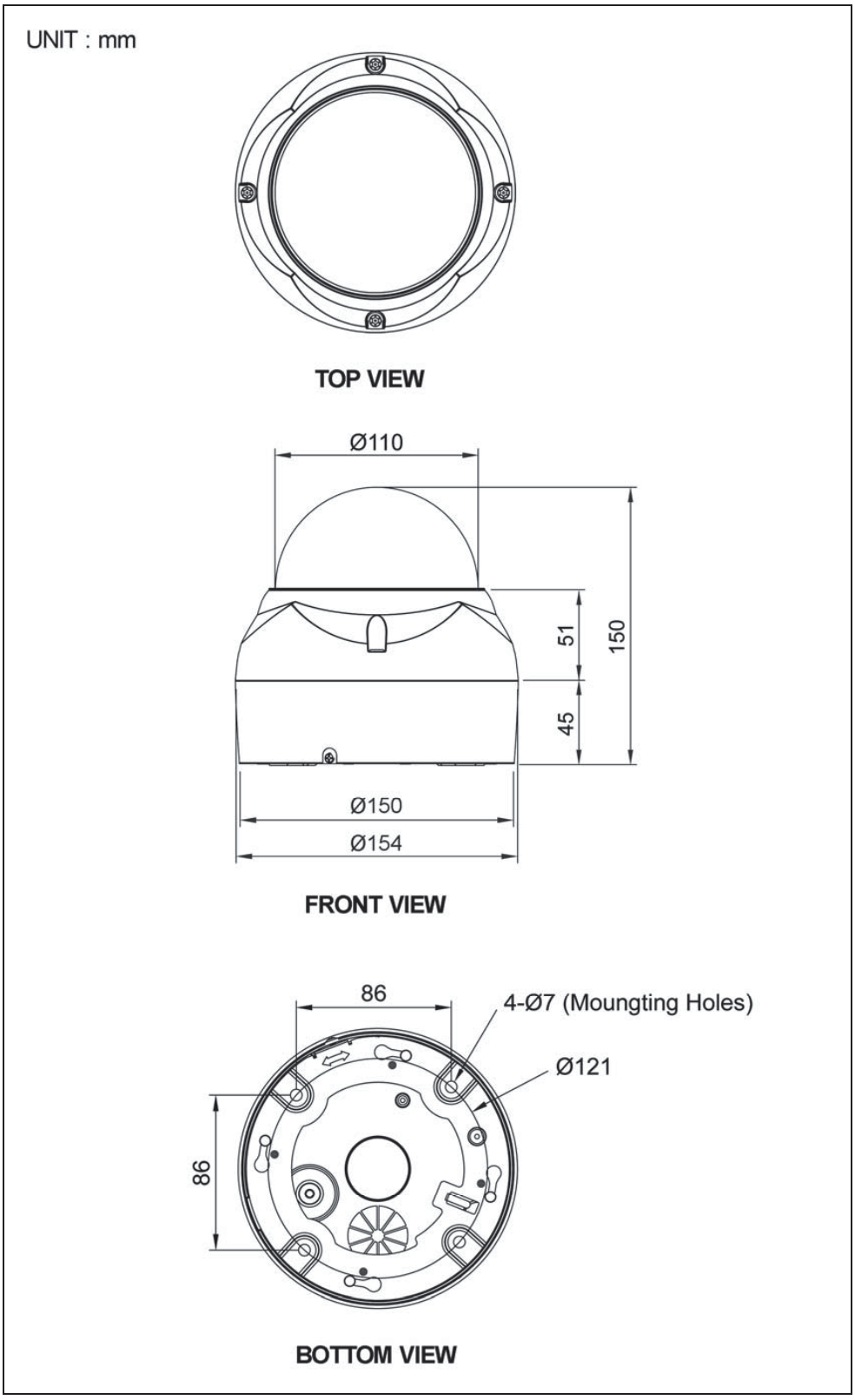


Figure – Dimension

Appendix B — Troubleshooting

If problems occur, verify the installation of the camera with the instructions in this manual and with other operating equipment. Isolate the problem to the specific piece of equipment in the system and refer to the equipment manual for further information.

Problems/Symptoms	Possible Causes or Corrective Actions
The camera cannot be accessed by some clients.	If using a proxy server, try disabling the proxy setting in your browser. Check all cabling and connectors.
The camera works locally, but not externally.	Check if there are firewall settings that need to be adjusted. Check if there are router settings that need to be configured.
Poor or intermittent network connection.	If using a network switch, check that the port on that device uses the same setting for the network connection type (speed/duplex).
The camera cannot be accessed via a host name.	Check that the host name and DNS server settings are correct.
Not possible to log in.	When HTTPS is enabled, ensure that the correct protocol (HTTP or HTTPS) is used. When attempting to log in, you may need to manually type in http or https in the browser's address bar.
No image using Refresh and/or slow updating of images.	If images are very complex, try limiting the number of clients accessing the camera.
Images only shown in black & white.	Check the Video & Image setting.
Blurred images.	Refocus the camera.
Poor image quality.	Increased lighting can often improve image quality. Check that there is sufficient lighting at the monitored location. Check all image and lighting settings.
Rolling dark bands or flickering in image.	Try adjusting the Exposure Control setting under AE and AWB part.
H.264 not displayed in the client.	Check that the correct network interface is selected in the Video & Image/Stream.
Multicast H.264 not displayed in the client.	Check with your network administrator that the multicast addresses used by the camera are valid for your network. Check that the Enable multicast checkbox are enabled in the System/Network/RTP tab. Checks with your network administrator to see if there is a firewall preventing viewing.
Multicast H.264 only accessible by local clients.	Check if your router supports multicasting, or if the router settings between the client and the server need to be configured. The TTL value may need to be increased.
Color saturation is different in H.264 and Motion JPEG.	Modify the settings for your graphics adapter. Please see the adapter's documentation for more information.

Microsoft, Windows and Internet Explorer are registered trademarks of Microsoft Corporation. Safari is a registered trademark of Apple Inc. Chrome is a registered trademark of Google; Firefox is a registered trademark of Mozilla Corp. Opera is a trademark of Opera Software ASA. Pentium is a registered trademark of Intel Corporation.

Appendix C — Short Cut Key

Short Cut Key	Function
PRST	Pop up Preset setup menu
TOUR	Pop up Tour setup menu
PTRN	Pop up Pattern setup menu
SCAN	Pop up Auto Scan setup menu
No.+ CTRL+ PRST	Store the current view at the selected number

Short Cut Key	Function	Short Cut Key	Function
7 + ON	Change FOCUS to AUTO	7 + OFF	Change FOCUS to manual
8 + ON	Change AE to AE1	8 + OFF	Change AE to manual
9 + ON	Change Night Shot to AUTO		
10 + ON	Night Shot on	10 + OFF	Night Shot off
11 + ON	BLC on	11 + OFF	BLC off
12 + ON	Digital Zoom on (According to digital zoom setting)	12 + OFF	Digital Zoom off
13 + ON	Dome OSD on	13 + OFF	Dome OSD off
14 + ON	Dome Area Title Display on	14 + OFF	Dome Area Title Display off
15 + ON	View Direction on	15 + OFF	View Direction off
104 + ON	WDR on (AE1 mode)	104 + OFF	WDR off (AE1 mode)
150 + ON	Image Flip on	150 + OFF	Image Flip off
151 + ON	Origin Check		
152 + ON	Place the camera in the 0° area horizontally.		
153 + ON	Go to the slow speed mode	153 + OFF	Go to the normal speed mode
154 + ON	Display System Information		
155 + ON	Flip the camera in the 180° area horizontally.		
250 + PRST	Factory setup menu (Tour dwell time, Answer delay)		
888 + ENTER	Night Shot on (in the global mode only)		
999 + ENTER	Night Shot off (in the global mode only)		

MINITRAX3IP NETWORK DOME CAMERA